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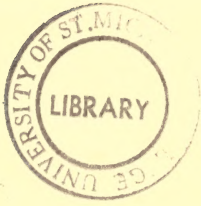


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THE PHILOSOPHY OF CHANGE



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THE PHILOSOPHY OF CHANGE

A STUDY OF
THE FUNDAMENTAL PRINCIPLE
OF THE PHILOSOPHY OF BERGSON

BY

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PREFACE

THIS book is the outcome of a course of lectures on "The Philosophy of Bergson" delivered in the University of London. The title "The Philosophy of Change" was suggested to me by M. Bergson himself as a sub-title for the little volume on his philosophy in *The People's Books*.¹ It emphasises the fundamental principle of the new philosophy, the principle that change is original.

It seems to me that our present generation is witnessing a wide extension of science in directions unimagined by, and inconceivable to, the last generation. In two directions especially experiment is opening up realms of reality the existence of which has until now been unsuspected, and the discovery of which is probably destined to widen immeasurably the horizon of human knowledge and thereby increase indefinitely human power. One of these new realms of reality may be fitly described as the world beyond the atom, the other is the spiritual (or mental, if that word is preferred) reality revealed in the new method and science of psychoanalysis. The Philosophy of Change is in

¹ *Henri Bergson: The Philosophy of Change.* (T. C. and E. C. Jack.)

striking agreement and complete harmony with the extension of science in both these experimental fields. The simultaneous formulation of a new principle in philosophy with its confirmation in scientific discovery must be something more than coincidence. There is no apparent connection, and it is certainly not due to direct influence. But is it not just as if a greater mind, of which our individual minds are the present activity, had brought to consciousness a new idea? It is this idea, the idea of original change, that I have tried to expound in this book.

From this standpoint I have endeavoured to present a clear and concise account of what seem to me the definite doctrines worked out in Bergson's philosophy. In this task I have been privileged to have the advantage of friendship and personal communication with M. Bergson himself. He is in no way responsible for the order or the manner in which I have set forth the doctrines nor for the arguments with which I have supported them, but he has encouraged me by the deep interest he has shown in the work, and has discussed with me many of the more difficult problems.

The reason I have devoted so much attention to the problem of the relation of mind and body is that I feel it to be the point of departure for a philosophy of action. What impresses me is the quite evident initial determination of M. Bergson to reach a definite conclusion as to the exact nature of that relation, and not, as so many have done, to rest satisfied with a cautious acceptance of some provisional hypothesis.

Matière et Mémoire convinces me that this problem was among the earliest to attract Bergson's attention, and that his conclusion from his studies of the physiology of cerebral processes, that those processes cannot of themselves by any possibility give rise to a perception or a memory, is the real starting-point of the development of his philosophical theory.

On this portion of my book I have had the advantage of the criticism of my friend Mr. William McDougall, to whom I am deeply indebted for his kindness in reading the manuscript, and who, besides pointing to defects in my argument and suggesting many improvements in my treatment of the problem, expressed his strong dissent from me on two most important doctrines. I mention them here because I think it is possible that in each case M. Bergson would himself incline much more than I do to Mr. McDougall's view. In the first place, Mr. McDougall objects that what I have called solidarity in action is nothing else but interaction, that it is meaningless unless there is interaction, and that it cannot therefore be described as a third alternative to the two alternatives of parallelism and interaction. To this my reply is that I by no means deny interaction, but I say that the theory I have put forward would stand even though all experiments designed to prove interaction should continue to be negative. On the question of the possibility of experiment to prove interaction I am able to quote from a letter written to me by M. Bergson: "En ce qui concerne la possibilité d'une création

d'énergie physique, j'inclinerais à considérer la question comme susceptible d'être traitée un jour expérimentalement. Il ne me paraît pas impossible qu'une énergie purement psychique puisse accroître (quoique, sans doute, dans une mesure excessivement restreinte) la somme d'énergie physique existant dans un système donné; et il n'est pas non plus impossible que des mesures convenablement prises viennent confirmer cette hypothèse, quand la science sera plus avancée." If such a test experiment can be contrived I hope it will be (like the well-known experiment of Michelson and Morley to show the effect of the movement of the source of light on the observed velocity of its propagation) equally capable of demonstrating a negation or an affirmation. For it seems to me that the negation of interaction, if there be none, is quite as important as would be its affirmation. What I claim for the solidarity of mind and body in action is that it is a fact which does not depend on the proof or disproof of an hypothesis.

In the second place, Mr. McDougall, conformably with the view he has developed in his book on *Body and Mind*, thinks that I, following M. Bergson, shirk the problem of individuality and fail to draw what he regards as the plain conclusion from the doctrine of memory, and of the vital impulse, that each human being has a psychical nature which is individual, which is the product of racial evolution and individual development,—a soul. In his presidential address to the Society for Psychological Research, M. Bergson has expressed his view that the

survival of individual personality after death is so probable as to compel belief in the absence of any positive disproof. I should not myself rank the probability so high. But, in any case, one thing is clear,—that, so far as action is concerned, we not only have no evidence of, but we have no way of conceiving, action except as a function of the union of mind and body. And this is plain when we consider the alleged evidences of survival. These are in every case certain actions of living bodies alleged to be the expression of a mind which is not the mind of the person who performs the actions. The important thing to me is that whether or not there be the highly complex psychical structures called souls, capable of maintaining some sort of existence when the organism they acted through is disintegrated, such existence would not, even were it capable of the clearest experimental proof, solve the tremendous problem of individuality and personality. Indeed in many respects it would multiply the difficulties of the problem, which is to understand how the whole can be, as it seems to be, present in the part. It seems to me that however successful we may be in distinguishing the spiritual reality from the material reality, we must recognise that in living action they are inseparable, and that the solidarity of mind and body in action means that only in their union do we know their existence.

It will be seen, therefore, that in making it my aim to present the fundamental principle and definite doctrines of Bergson's philosophy I have sought like-

wise to distinguish clearly what is definite and essential from what is vague and only suggestive. I do not mean that what is precise and certain in philosophy is alone important. I do not undervalue the prospect of finding true the hopes and ideals that materialism has seemed to condemn as groundless and vain. But I have written for those whose interest in what we know is greater than their interest in what we should like to know.

I wish to thank Mr. Alexander for his kindness in reading in the MS. the account of his doctrine of realism on pp. 100-102. He remarked that the shortness of the statement makes the doctrine more difficult than it really is. I am fully conscious of this, but as my account is only introduced as a side argument I must be content with hoping that readers will wish to know more of Mr. Alexander's theory and will go to the source.

I have had most valuable assistance from Mr. Dawes Hicks, who kindly corrected my proofs and gave me many suggestions. Mr. T. P. Nunn and Mr. Arthur Robinson have also read my proofs, and I owe to each of them some improvement in the original statement.

H. W. C.

LONDON, *June* 1914.

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CHAPTER I

THE METHOD OF PHILOSOPHY

THE study of philosophy is not easy. We enter upon it knowing beforehand that its history is a long record of failures to attain the simple end—a reasonable account of the universe—that each philosopher sets out with the intention of reaching. We know too that unlike science, in which common agreement and unity of method have led to continual progress and in which, by reason of its great expansion, workers have been compelled to specialise, specialisation in philosophy is practically impossible, every worker being engaged in a fierce strife over first principles. And yet it seems as though philosophy ought to be of all studies the easiest, its method of all methods the surest, its object of all objects the most attainable. For in philosophy, though the whole of reality is the object of study, yet we approach it in an entirely different manner from that in which we study physical science. It is ourself and our knowledge that is our subject-matter. The analysis of knowledge as conscious experience is our method. It is in this large meaning, as distinct from the narrow psychological meaning, that “Know thyself” is now, as it was for the ancient Greeks, the business of philosophy. Why then should it be difficult,

and in what exactly can the peculiar difficulty we meet with in philosophy lie? The whole subject-matter is with us at every moment, no elaborate preparation of material or invention of apparatus is required as in the physical sciences, no discipline beyond that attention which all serious study demands as a pre-condition of success. What then can the reason be that whenever we reflect on this most familiar, most intimate, and most accessible reality—our own life and consciousness, our own experienced apprehension of reality—and try to frame for ourselves a rational conception of it, that here, where we should expect our intellect to be most at home, it is, on the contrary, foredoomed to failure, whereas when it deals with a reality external to us, a matter that is foreign to us, its continual approach to success is so remarkable? There is one consideration that may help us to give the answer. The difficulty of philosophy is not at the beginning. Start with whom we will—Plato, Berkeley, Kant, Hegel—no difficulty arrests us on the threshold, all is easy and familiar; it is only as we advance that the difficulties begin to appear, and only at the end that they seem insuperable. It is not in their beginnings but in their conclusions that philosophers meet those fundamental difficulties which are for ever throwing them back on the study of first principles. May we not suspect that in this very fact lies the key to the solution? May it not be that the path on which we enter the study of philosophy is easy and inviting just because it follows the natural bent of our intellect? May it not be that the concepts which have proved so successful in dealing with external reality are unfitted to comprehend the active life itself which has evolved those concepts in us? If this should prove to be so, then the very ease with which we enter

on the study of philosophy is the origin of the difficulty we meet in the course of it.

If the view that we are now going to put forward be true, that philosophy begins in an intuition of reality, and that intuition is especially the method of philosophy, as distinguished from intellectual apprehension which is the method of science, then there will be this difference between our philosophy and other philosophies, that its difficulty will meet us at the beginning and not at the end. The further we advance the easier and the more convincing it will become. But of the beginning we may say, as was said of the rich man who would enter the kingdom of heaven, that it is easier for a camel to pass through the eye of a needle. And why? Because we must start with a mental effort of extreme difficulty, not merely with a mental abnegation, not merely with the determination like that of Descartes, to doubt everything until the fact of doubting itself alone is left—I think therefore I am—but with an act of the mind which turns the mind from its own natural bent, turns aside from ready-framed concepts to place itself in the real activity out of which the conceptional habit has been formed.

There is a general idea that intuition in philosophy is a kind of impressionism, affecting blurred outlines and colours which run into one another. It is thought that intuition substitutes a vague indefiniteness of feeling and emotion for the clear logical thinking and sharply defined categories of intellectual analysis. It has been regarded as a kind of religious mysticism. I shall try to prove that the very contrary is true; there is no philosophy clearer in its method, more definite in its doctrine. We might almost say, in fact, that its most striking feature as a whole is its scientific

character. Intuition presents the ideal of a method in philosophy which shall obtain not merely recognition but lead to results in knowledge of mind comparable in every way with the continual progress and practical achievement which have marked the advance of physical science. It does not attempt to minimise the value of science, it does not triumph over the limitations of science, nor claim to offer a kind of knowledge that is at once higher and nobler than science can attain to. It does not dig below science in order to sap its foundations and involve its structures in ruin. On the contrary, it recognises its value in its limitations, and seeks to supplement it by a method that shall join to it a knowledge that of itself science is by a natural disability unable to attain.

And what is the knowledge that philosophy may and science cannot attain? What object is it that philosophy can comprehend but that science by its very nature cannot? We may answer in one word—freedom. If there be—there may not be—anywhere in the universe a free activity, it is clear that by its very nature science will fail to comprehend it. Science is the discovery of law. Its whole character is deterministic. Every advance of science is the bringing under one law, into one rigidly determined system, whatever fact or phenomenon has seemed capricious. Physical science is essentially deterministic, and its ideal is a universal mathematic in which everything is calculable. If we find a fact that science does not comprehend, we must conclude either that the fact is not a fact but a mistaken view of a fact, or else that science is not all-embracing, that it is not the only mode of knowing. There is a fact, the fact of life, that science does not comprehend.

How does this fact appear to us? If we look at it from the point of view of our own living experience, from the inner standpoint of our consciousness, it appears to us as a power which we possess of acting freely. We feel that we are free—the freedom may be an illusion, but the feeling is an absolute fact. If we look at the fact of life from the external standpoint as a fact among other facts that constitute the world, then it seems as though here and there in a universe, which appears otherwise completely determined, there are centres of indetermination. These centres of indetermination are wherever there is life. Everywhere else we can calculate the actions and reactions which determine one another, but wherever there is life there is something incalculable and unforeseeable, something new and unpredictable, continuously happening. It may be illusion, or it may be appearance, due to the limitation of our outlook and to our ignorance, but so it appears. If the meaning of the appearance is that the essential character of life is freedom, then it must be incomprehensible to science. Must it therefore be unknown or unknowable? The very idea involves an absurdity, for the fact of life and consciousness is the very basis of experience itself. But it is elsewhere than to science we must turn. If our knowledge of life is to be precise, consistent, and sure, it is to philosophy we must go. This is the positive aspect of philosophy. It has a definite subject-matter, a reality which science cannot comprehend, which can only be brought into one scheme of human knowledge by the method which philosophy and not science employs.

But some will not agree that the essential character of life is freedom. They will admit that there is an appearance of spontaneity or freedom in living matter

which we do not meet with in inert matter, and they will admit the fact of consciousness that we feel our actions to be free. If, however, this feeling of freedom is not a fact but an illusion, then there is no natural disability in science to comprehend life. The failure is in that case due not to natural disability but to the enormous complexity of the phenomena of vital actions, the feebleness of our powers of investigation, and the extent of our ignorance. Many biologists are sure the solution of the problem is one of time, and that some day the last secret of the nature of life will be yielded up to the chemist in his laboratory. And if, indeed, others are more humble and regard such a consummation as an unattainable ideal, it is not because they recognise a natural impossibility, but because their instruments and methods are so hopelessly inadequate to the task. Let us admit, then, that there may be no such fact as freedom. Let us suppose with the materialists and the mechanists that the universe is completely determined, that freedom is an appearance only and not a reality, and that the feeling of freedom is a consequence of our ignorance of the factors that determine our action. Yet even if we take the view that freedom is an appearance and not a reality, we have to admit that there is an appearance of freedom, and that in individual experience it takes the primary form of a feeling. We cannot therefore escape the burden of proving that it is appearance and not reality. How shall we do this? No argument will prove the impossibility of a fact. The only proof we can offer that this freedom is an illusion is that science is deterministic and therefore unable to comprehend it. But this is tacitly assuming the very fact that has to be proved, namely, that there is no other way of viewing a fact but the scientific way.

There can be no ground for such an assumption. The determinist character of science may be a consequence of our intellectual nature, determinism may belong to the view that we take of a reality itself free. If this be so then philosophy must supplement science.

Again, some will not agree that physical science is restricted to a determinist or mechanist view of the universe. Freedom, they will say, if it be a fact will find its place—must find its place—in physical science. And even if it be admitted that the rigid concepts with which mathematics and physics bring preciseness into knowledge are unfitted to comprehend the phenomena of life and consciousness, it is not a new method that is called for, but a larger, more inclusive, system. Yet it is scientific thinkers who are responsible for the restriction. They claim, apparently with good reason, that the discarding of all aspects of nature which will not submit to measurement, and the reconstruction of experience on a mathematical model, the fitting of reality into a scheme of which pure mathematics is the type and the incentive, has constituted the notable success of physical science, and is the secret of its hold on the human mind. An example of this tendency to restrict science to mechanism is to be found in the youngest of the sciences—psychology. States of consciousness—sensations, emotions, pleasure, pain, desire, conation, will, cognition—do not naturally adapt themselves to measurement, yet we see an increasing body of scientific workers engaged in devising experimental methods the object of which is to impose on this refractory material a mathematical order and to bring it within the scheme of a universal mechanism. To these workers the whole success of the new science depends on the successful introduction of measurement.

There is, however, a still more important consideration. It is quite true that no mechanical system, no system that confines itself to explanation by efficient causation and eschews final cause or purpose, can be a comprehensive system of the reality of the universe. The world of mind is the world of purposes and meanings and values, and these must find a place in any complete scheme of reality, but those who include purpose with mechanism in one scheme and name it physical science, or simply science, those who see no difficulty in combining efficient and final causation, seem to miss altogether the crux of the problem. The problem surely lies in the fact that the realm of scientific explanation or mechanism is a system complete in itself. The physical order is not torn out of or broken off from the whole of reality, it presents no ragged edges, it has no need of the psychical order to complete it, however necessary it may be to recognise the equal reality of that order. How comes it that it is possible, nay, even necessary, to regard the chain of physical causation as complete, in the sense that all the gaps in our knowledge, or limitations of our knowledge, are conceived by us to be causes or conditions of the same order, and not causes or conditions of a different order, while at the same time we are well aware of an order that is not physical but psychical? This is the real problem. It is a problem of two orders and their relation.

Science has not always been distinguished from philosophy, either in subject-matter or in method. Originally there was no distinction; philosophy was merely the more comprehensive word, and science denoted particularly the part of philosophy which was

pecially directed to the study of external natural phenomena. This original unity is preserved in the term *natural philosophy*, and in the description of opticians and others as makers of philosophical instruments. When the great advance of science began there seemed at once to develop an antagonism between two opposed methods—the inductive method, the beginnings of which we associate with the names of Galileo, Bacon, and Newton, and the rational or logical method which we associate with Descartes, Leibniz, and Spinoza. Not that there was ever real antagonism, but there developed a more and more complete separation. To many historians of the intellectual development of western civilisation the line of science has seemed a continual advance and increasing victory of mind over matter ; the line of philosophy, on the other hand, has seemed, if not a useless waste of intellectual activity, a continual struggle against an increasing obscurity. Science has seemed to be ever widening the circle of human knowledge, philosophy to be plunging in the morass of an unsubstantial and ineffectual metaphysics. And philosophers themselves have been very different in their attitude towards science, sometimes, like Hegel, expressing a magnificent and bitter contempt for its method and attainment, sometimes, like Comte and Herbert Spencer, regarding philosophy as a mere humble servant of science waiting to co-ordinate its results. Bergson, on the other hand, adopts an attitude to science which is neither superior nor servile. Its value, method, and attainment receive full recognition ; its limitations are not a reproach but reveal the need and give the opportunity to philosophy ; and philosophy, while following its own method, can only be justified if it gives results worthy to be compared with those of science.

A great change is noticeable in the last few years in the relations of philosophy to science. It seems as if a mutual attraction had been drawing together the two sometimes divergent lines of the human pursuit of knowledge. The enormous expansion of scientific knowledge in the direction of mathematical and physical theory has seemed to give to many of the modern physical conceptions a metaphysical character. The electrical theory of matter on the one hand, and the theory of the stellar system on the other, seem almost to press to the limits of physical investigation and to invite metaphysical explanation. It is really difficult to say whether we ought to class the Principle of Relativity as a physical or metaphysical principle. The paradoxes of modern science judged from the standpoint of ordinary experience are in every way as staggering as the most transcendental theories of philosophy. When we are told that mass is a function of velocity, that space and time themselves are derivatives of systems of movement, that nothing is at rest, not even the hypothetical ether, that the propagation of light is a critical velocity which cannot be exceeded and which is at the same time uniform for all observers whatever their own system of movement, we seem not only to have left altogether the ground we are accustomed to think of as the firm basis of scientific conceptions, but to be transported into metaphysics. I do not mean that any actual physical theory is metaphysical, nor that the terms physical and metaphysical in respect of any theory lose their sharp distinction, but that many modern physical speculations, in their contradiction of accepted ideas and their dependence upon concepts, share with metaphysical theories the character of dialectical subtlety

and the obscurity and difficulty so commonly ascribed to the latter.

I shall explain this best by examples. The essential principle of the philosophy of change is that movement is original. Things are derived from movement, and movement is not a quality or character that things have added to themselves. I shall have much to say on this principle, but for the present let us leave out of question whether it be true or false. If it be true it is a metaphysical principle, and it is philosophy not physical science. By this I mean that it is not a hypothesis verified by working. No experiment that we can imagine ourselves to contrive would increase or decrease its probability. It is beyond physics in the sense that it does not rest on anything we are able to observe in the external world but on the nature of conscious experience itself. It belongs to philosophy because it is only the method of intuition that reveals it ; it is indeed, as I shall endeavour later to show, the positive fact about reality that intuition reveals. At the same time no philosophical principle that is in direct contradiction with physical science can stand. All I affirm is that its philosophical character is not its scientific character.

On the other hand, what is now named the Principle of Relativity is a scientific principle,—scientific in precisely the same sense that Newton's laws of motion are scientific. The Principle of Relativity is that electro-magnetic phenomena are constant (that light, for example, is propagated at a uniform velocity of about 185,000 miles a second) for all observers in uniform movement of translation relatively to one another. The principle has been formulated to express the uniformly negative results of all the experiments designed to reveal the rate and acceleration of a

movement from observation made within it. Clearly if the medium in which light is propagated is absolute and stationary in relation to all systems of movement, then the velocity and direction of each system of movement will be revealed to an observer within it by the variations which the velocity and direction of light propagation will appear to undergo. All experiments designed to show this variation have had a uniformly negative result, and this has rendered necessary a set of new equations. It is a scientific advance along scientific lines. When I say, then, that this Principle of Relativity is metaphysical in its direction, I mean that the results that follow from it—the abolition of the ether, the profound and complete metamorphosis of the hitherto accepted notions of space and time, the meaning of simultaneity, and so forth—seem to involve a reformation of the very concept of external reality which physics assumes, and on which it is based, and so to challenge a metaphysical explanation.

This will appear, and also it will assist us in our special study, if we consider these results of the adoption of the Principle of Relativity without in any way proposing to decide the question of their scientific value or truth. Let us take first the abolition of the ether. What is this doctrine, supposing it to be true? The ether, it will be said, never was more than a hypothesis, full of glaring inconsistencies from the first. It was, however, no less useful on that account. If we are told that light is of the nature of vibrations or undulations, a necessity of thought requires us to complete the idea by affirming a medium which is set in vibration. So far as the ether has stood for this and this only, it has been and will continue to be a convenient term, and it is unlikely to fall out of use. So long, that is to say,

as we conceive light to be a propagation of waves we shall speak of ether as the medium in which the waves are propagated even if we can assign to the medium no character that distinguishes it from a vacuum. But the ether (or vacuum if there is no ether) was supposed to be absolute, that is, to be absolutely at rest in relation to all systems of movement of translation. The experiments have shown that it is not so. The medium in which light is propagated moves with the system of movement to which the observer is attached, whatever be its direction, velocity, and acceleration. In other words, if we retain the ether we must say not that there is one ether but that there are infinite ethers—as many as there are systems of movement of translation—and this in effect is exactly the same as to say there is no ether.

But the ether, if it existed, was supposed to occupy space. We might raise questions and make experiments to find out its dragging power or its possible resistance, but at least it was absolute to this extent, that whether or not space was filled with ether there was without doubt an absolute space to be filled. Consider, then, this second result of the Principle of Relativity—that distance (space) is relative to the observer's system of movement of translation, and consequently space is a derivative of movement. This is usually illustrated by the familiar example of objects dropped in immediate succession through the floor of a moving wagon. To observers in the wagon two such events occur in one place; to observers on the ground they occur in two places separated from one another by a distance. This is applicable to all the events that can be observed in the universe. However distant from one another two events are observed by us in our system of translation,

it is possible to conceive an observer in a system of translation for whom they occur in one and the same place. And on the other hand, of every single event that we observe in one place we can suppose an observer for whom it would be two events occurring at any distance from one another we choose to imagine. And with the absolute character of space goes likewise the absolute character of time. Time also is seen to be a derivative of the observer's system of translation and relative to it. For it is clear that the time interval between any two events is shorter for the observer to whom they occur in one place than for any observer to whom they are separated by distance. In consequence the concept of simultaneity acquires a new meaning. For since space and time are not absolute there can be no unique sense in which two events at different places are simultaneous.

It is, however, the doctrine of the constant velocity of light which is the most disconcerting to common sense notions. What appears strange in the new theory is that it declares the velocity of light to be a finite velocity, that is, a velocity which is expressed by a definite numerical ratio of space measurement to time measurement, and yet to be a maximum velocity, that is, a velocity which cannot be exceeded or overpassed. This seems a direct contradiction. It is not difficult, however, to see why the new theory has needed to replace the concept of an infinite velocity, which formed part of the Newtonian system of physics, with this new concept of a finite velocity, which is at the same time what is technically termed a critical velocity. It is the simple consequence of the doctrine that space and time are variable, and that a kind of compound of the two is constant. The Principle of Relativity regards every

observer as the centre of a universe in which the events are co-ordinated by a system of four axes, three for space and one for time. These axes of co-ordination are all variable, which means that they will change if the system change. But however much the system changes, one thing will remain constant for the observer, namely, an electro-magnetic phenomenon, such as light, will preserve a definite relation of space to time. If the source of light in empty space be separated from the observer by one second interval of time, it will also be separated by a distance of 185,000 miles, whatever be the movement of the system relative to other systems.

I need not pursue the problem ; I have described it for illustration only and not for instruction. To those accustomed to the conceptions of the older mechanics the new ideas sound like paradox, but my purpose in sketching this scientific revolution is not to show how it contradicts long-accepted notions, but how it leads to a metaphysical issue. Does it not point unmistakably to a reconsideration of the necessity of thought that makes things appear more original than movement ? This necessity of thought is purely a subject for metaphysics. It is not, I think, mere coincidence that the main conclusion to which recent developments of physical and mathematical science seem to lead is identical with the main conclusion which a recent philosophy has formulated. The considerations which have led to the conclusion are very different in their origin. While science is demonstrating by direct and indirect experiment that there is no rest, but that all natural phenomena must be interpreted in terms of relative movement, in philosophy a new doctrine is maintaining that it is impossible to conceive movement to be derived

from things, but things may be derived from movement. Movement is original, all else is derived. Bergson has stated this doctrine of original movement most clearly in "La Perception de Changement," from which I will translate two passages. "Movement is the reality itself, and what we call rest (*immobilité*) is a certain state of things identical with or analogous to that which is produced when two trains are moving with the same velocity in the same direction on parallel rails; each train appears then to be stationary to the travellers seated in the other." And again: "There are changes, but there are not things that change; change does not need a support. There are movements, but there are not necessarily constant objects which are moved; movement does not imply something that is movable." A very few years ago such a doctrine would have sounded paradoxical and absurd. But now compare the philosophical doctrine of original movement with the new theories of science. Let us take first the structure of the atom. The electrical theory of matter teaches that the atom is composed of a central mass or core, which is far the larger part of its substance, and an envelope small in comparison. The central core is positive electricity, and the outer envelope consists of negatively electrified particles held in position by their electrical relation to the central core. The atom, in fact, is a solar system in which the positive element is the sun and the negative element the planets. And all the qualities of atoms depend upon the arrangement of these outer negative elements. But what is the ultimate reality of this atom—something or other that is electrified? No, it is electricity, not something electrified, and electricity is a form of energy, and energy degrades and disperses.

Reduced to simple everyday concepts it is this, that what we call matter is a form of movement. But now turn to the other side. In the last few years it has been possible to demonstrate that our solar system is not, as was supposed, at rest in an absolute space or else moving, if it be moving, without regard to forces outside itself. It belongs to a larger system, all the parts of which are in movement in relation to one another. The fifty million stars that our telescopes reveal are not scattered at random over the firmament, but are moving along regular courses co-ordinated to one another. The members of this stellar system are not, like the planets, revolving round a central mass, but millions of suns are streaming across an unoccupied centre. The speed of our sun (now about $12\frac{1}{2}$ miles a second) has been calculated, and its direction and the acceleration it will undergo as it travels across the centre and passes outwards again to the periphery. This, however, is not all. A discovery has been announced that seems likely to extend indefinitely further than astronomers have yet imagined the vastness of the spatial universe. Observations which have been made on the great spiral nebula in Andromeda show that its spectrum is inconsistent with the hitherto generally held supposition that it consists of gaseous matter in a state of extreme tenuity. It is now said to be a spectrum that is given out by solid glowing masses, and thus seems to confirm an old view that the nebulae are star groups immensely distant. This nebula is apparently not within our stellar system, but itself a vast stellar system lying outside the latter and at an enormous distance away from it. What other systems lie outside these we do not know, but all that we discover suggests universal movement. There is no absolute rest. If we conceive

an observer placed anywhere in this great universe that we look out upon from our position on an insignificant planet of an insignificant sun, whether we suppose him to gather into one embrace what to us are vast stellar systems or to be confined to the negatively charged ion of an hydrogen atom, there will stretch out for him on either side an unlimited expanse of reality of which the ultimate essence is movement.

Yes, it may be said, but this only means that science cannot point to the actual matter that is moved. It does not mean that there is no matter, nor that matter is only a function of movement. There is a perpetual regression, but the x that is sought for must be thought to exist, however persistently it evades our efforts to detect it. There is something that carries the electric charge even if we are doomed to remain for ever in ignorance of it. It may be so, we reply, but even so we must be prepared to shed from this x all the properties, even the spatial properties that have seemed equally surely to belong to it, for the principle of relativity shows us that its mass and its shape are functions of its movement.

It will be said no doubt, especially by those who are attached to science, that there is in this agreement between the fundamental principle of a new philosophy and the most recent discoveries of science, merely an outward coincidence, that there is in reality nothing in common between the two principles—the philosophical principle that reality is a flux and the scientific principle that the state of anything is a function of its motion. It is not, it will be said, philosophy that has given us this conclusion, but a philosophy. It is but one among many philosophical speculations, and its concern is not with science but with other philosophies. For there

are many philosophies, as many indeed as there are philosophers, whereas science is one. This is, of course, the standing reproach against philosophy—can it be removed?

Can philosophy be one as science is one? Yes, if we recognise that philosophy starts from an intuition of reality, that its method is to seize this intuition in its purity and dilate it. The mind has the power of grasping by direct apprehension the reality of the universe as it is in itself and before it undergoes the shaping and forming and framing and moulding which the intellect imposes on it in order to fit it to serve the practical activity of our lives. This direct apprehension or intuition of reality is the method of philosophy. The new outlook therefore consists in this, first of all that there is a subject-matter of philosophy which is not, and cannot as such be, the subject-matter of science, namely, the fundamental fact of life and consciousness, which is freedom, and also that there is a method of philosophy which is the very contrary of the method of science, namely, the method of intuition. The distinctive character of this philosophical method, as we shall try to show continually throughout this study, is that it apprehends the whole before it apprehends the parts, and that it interprets the parts as a dissociation within the whole. Science, on the other hand, seeks to apprehend the ultimate elements which come together in the whole; it endeavours by more and more successful analysis to isolate the constituents and discover their affinities; it conceives the whole as an association of its parts.

CHAPTER II

THE DOCTRINE OF INTUITION

THE new method we propose to describe as the method of philosophy is nothing less than a revolution. Not that it is something so new that we search in vain for it in the great systems of the great thinkers, but that hitherto its employment has been unconscious and implicit, whereas we claim to recognise in it the only method that makes possible a true metaphysic, that is, a knowledge of the source of the reality we study in physics. In proclaiming this new method we are reversing the direction that philosophy has followed, we may say, throughout its history of 2500 years. It is the direction which philosophy has hitherto followed which is responsible for the fact that the history of philosophy appears as a history of systems of philosophy each professing to be complete in itself and mutually destructive of one another. Philosophy has always sought to apprehend reality through concepts. It seems to be a natural disposition of the human mind to suppose that the highest reality can only be grasped by that which seems the highest power of the mind, the power to rise above the immediacy of sense experience, and to contemplate an object of reason. Bergson has expressed this in saying that we are naturally Platonisers. Plato held that we live in a shadow world, that the things of sense,

and the space and time which condition them, are the mere unsubstantial shadows of real ideas that are immutable and eternal, the true objects of intellectual contemplation. And this view in one form or another has been a pre-possession of philosophy. The supreme object of philosophy is God, and the concept of God is a concept of the most real of all realities, the ground and explanation of all existence. Now in whatever way philosophers have held that this object is attained or revealed, whether with the mystic it is held to be through direct vision, or with the idealist through a logical process of thought, it is always an object above sense perception and freed from the vicissitudes of time and place. It is eternal and it is perfect. In the new theory this whole process is condemned as radically vicious. Reality cannot be comprehended in a concept, and the more perfect, the more fitting the concept the further are we from, and not the nearer to, the fundamental reality. It is only by realising this that we shall ever understand the true nature, the real purpose of the intellectual process itself. Reality lies below and not beyond thought. The doctrine then that there is an intuition of reality is the direct contrary of the doctrine which is illustrated in the writings of Plato, of Hegel, and, among distinguished contemporaries, of Mr. Bradley, the doctrine that reality is apprehended through an idea of reason, the idea of an eternal and immutable object, which some philosophers conceive as personal and call God, others as individual, though not necessarily personal, and call the Absolute.

What then is intuition? It is the apprehension by the mind of reality directly as it is and not under the form of a perception or a conception, nor as idea or object

of the reason, all of which are by contrast intellectual apprehension. There is, therefore, affirmed to be a capacity of directly knowing reality and a nature in reality of direct revelation. But not only has it been generally denied, it is even now strenuously denied, that intuition in this meaning is either actual or even conceivable. I shall try to show that it is not only a fact, but that so far from its being a mystical experience, it is the most common and unmistakable fact, and that we only fail to recognise it because it is so absolutely simple that it requires a strong effort to turn the mind from its naturally intellectual bent in order to get this non-intellectual vision. When we do succeed, it is no ecstatic vision that we get, no exaltation into a higher sphere. Rather we obtain a fleeting vision of the reality that underlies our common everyday experience. Why is it so important that we should make this effort and seize this intuition? Because only by doing so shall we ever be able to understand our intellectual nature itself, only by doing so shall we attain a philosophy, a theory of knowledge, a real science of metaphysics. And it is only if we recognise this reality in its ultimate nature that we can hope to explain the nature of the human intellect and apprehend the way in which it serves human activity.

Intuition, then, is a direct apprehension of reality which is non-intellectual, and non-intellectual means that it is neither a perception nor a conception nor an object of reason, all of which are intellectual forms or, as we shall explain later, intellectual views of reality. But why exclude perception? Perception is generally thought to be a direct form of knowledge, and in a new theory of knowledge which has been much discussed lately under the name of the new realism it is held that in perceiving we apprehend the actual real object

directly without any intellectual addition formal or material. Perception is indeed much nearer to intuition than either conception or reasoning, but perception is not intuition. Perception and intuition are distinct and that for two reasons, first, because perception is limited, limited to the actual moment of time that we call the present, and secondly, because in actual practice perception is never pure, that is, never occurs without admixture of conception and reason. This will require our attention later on when we come to consider perception; for the present it need not detain us.

The best way perhaps in which to get a clear notion of what is positively affirmed in saying that we have an intuition of reality is to compare the contrary doctrine set forth so powerfully in the philosophy of Kant, the doctrine that we cannot know things in themselves. The forms of the mind constitute, as it were, a ready-made scheme into which the data of sense are received, and apprehension consists in combining these sense data according to necessary and universal rules, in virtue of which combination they are objectified and become known. It is the mind itself that gives to the impressions received through the senses the forms of space and time in which alone they can become objects of perception. Through being received by the mind into its forms of sensibility, the rough material of sensation acquires spatial and temporal characteristics. Then the understanding, through means of the categories, constructs this sensuous material into objects of perception, and these objects of perception, being related by the categories to the unity of apperception, are connected together as parts of one world, the world of nature. Now it is clear that if all apprehension is intellectual apprehension then Kant is right; we cannot have

knowledge of things in themselves. Metaphysics would be just this knowledge and therefore Kant concluded metaphysics is impossible. The doctrine of the intuition of reality is therefore the reverse of this conclusion. According to it we can have a metaphysics, a knowledge of reality as it is, because we have an intuition of reality that is not intellectual.

In order to appreciate this doctrine, or I would rather say, this fact, for I want to point not to a theory but to a fact, it is not necessary for us to go into a minute analysis of the intellectual act of apprehension. It is an act of very great complexity, but the reality apprehended is simple and unique. If we attend to the perception present to us at this moment of any object—whether it be a sensible object such as a physical thing, or a mental object such as the meaning of the sentence we are reading—the reality apprehended is single and indivisible but the act of apprehension is exceedingly complex, involving a practically infinite number of elements that we can present to ourselves as particular data. A perception is not the simple datum of one sense but the combined data of different senses, and each of these introduces a practically infinite complexity. If it is a spoken sentence, every modulation of every syllable of every word, every part of speech employed, with all its implications, can be, if and when we will, separated out and regarded as distinct in itself, and every such separated element can be further broken up, yet with all this complexity of the apprehending act the reality apprehended is simple and unique, it is not a combination or aggregate of innumerable elements.

But more than this, there is always with us, characterising every conscious moment of our lives, a consciousness

of reality. We are always in the presence of objects that form definite contents of our consciousness, and our own body is an object among the objects, but over and above what the particular objects we are aware of at each particular moment are, there is an awareness which seems to be reality itself. The particular objects and their relations may as some think be due to the form the mind imposes on reality, or they may be due to the essential nature of reality, but whatever they are there is besides the general consciousness of reality. If we had not this general consciousness we could not distinguish dream life from waking life. We could not distinguish perceptions from memories, the past and the future from the present. I am not saying that there is another object in addition to the particular objects but that while we can neglect the particular objects there is one general object that we cannot think away from the actual present consciousness, and that is reality itself. We can think away every particular determination of reality, but we cannot think away reality itself. We cannot do so however much we try. Let us imagine that the whole of reality is a dream, let us suppose that all that is happening around us exists only in our consciousness and has no independent reality whatever. Suppose we succeed in thinking it is so, or even in thinking it may be so, the very thought involves the idea of waking out of the dream and the very denial of reality is the affirmation of reality.

We may say then that the basis of all conscious experience is an apprehension of reality, that particular experience gives form to it, and that there is no reality without particular form, but that at the basis of our knowledge is this reality which we are conscious of as that which receives form. This is recognised in

many philosophies. It is admirably illustrated in Mr. Bradley's doctrine that knowledge arises in a felt reality before thought, a *that* of which we afterwards ask *what*.

Is there any experience in which we are aware of this reality without the intellectual form which gives it particularity? There is one experience, or rather an experience of one object, which does seem to give us this very distinction between reality felt and reality thought about. When we are conscious of reality—conscious, that is to say, of being actually part of present existence, acting and not merely dreaming or imagining, conscious of ourselves as part of what is—we are then aware of the world as an aggregate of objects affecting us and affected by us in particular ways, but there is one of these objects that we know in a way in which we know nothing else, this is our body. It is an object, an external object, to the mind, like any other object that forms part of the physical world, but we know it in an intimate way in which we know nothing else. We know it from within as the seat and instrument of our life. If then anywhere there is possible for us a view of reality in its purity, free from any external form that apprehension may impose upon it, it will be in the inward view that we may obtain of this privileged object. We have here a common experience. When we turn away from the external world with its interests and activities, its good and evil, its strife, the victory or defeat of our efforts, we seem to be turning away from reality and we do turn away from it as the field of our activity. If then we turn our mind inward to contemplate our life itself as it is being lived within us we seem to become conscious of the actual reality of existence itself. If we fix the whole attention of our

mind on this life of ours as we live it, if we realise to ourselves our life as it is being lived, we get an intuition of reality, that is to say not a thought of it, not a perception or conception of it as an object, but a consciousness of the actual life we are living as we live it. Bring it as a picture to the mind, present it to the mind as an object of thought, and it is gone. We can only refer to it as an experience of life that we have in living. This is the intuition of reality.

Now if we try to distinguish what actually is the difference in our knowledge when we look out on to the world, whether it be our own life or the material things around us that we make the object of our observation, and when we look inward and know our life in living, we find that it is this : in the one case our knowledge seems relative, relative to the position we occupy and the view we take, in the other it is absolute. It may be limited, but however narrow, momentary, fleeting, the vision be, we feel that it is not an external view of reality but an absolute experience of reality. This again is what we mean by the intuition of reality.

What, then, is the nature of the reality that this intuition gives us, and how does the intuition differ from the intellectual apprehension of the same reality? We say that we may obtain an intuition of our own life in living and as we live it, an experience of life being lived. What is it? It is true duration. We know our own life as a change that is indivisible. We are within a movement, or we are a movement experienced and not watched from without. By bringing this difference of meaning clearly to consciousness we may grasp the idea of what is itself not an idea but an experience, the true duration. There are two ways in which we

apprehend that reality which we call our own life. One is by letting life itself become conscious of itself. Then we have an indivisible change or duration, or movement, —indivisible because we are it, all that it is we are— and a pure or true duration because it is not something which changes or which is moved. It is the change or movement itself, not something extensible of which we can say this part is here, that there, but something in which all that qualifies it interpenetrates it and exists in and is the movement itself. This is life as we apprehend it by intuition. But we may also apprehend this life by analysis, and then what do we find? The very contrary of the intuition. Our self, our life, is no longer one and indivisible but breaks up into elements, the states with which the science of psychology deals. We distinguish emotions, sensations, perceptions, all of which become more and more distinct and seem to lie outside one another; memories become separated from perceptions, and the one and indivisible duration breaks up into a series of states that have happened, and anticipations of states that will happen, divided by a present moment that is a mathematical point with no duration and therefore without reality. In intuition all reality is present, in analysis all is over and past, or not yet, and the present is nothing but a boundary line.

There is then for each of us one object the reality of which may be apprehended in an intuition which is pure. It is, as we have seen, the reality of our own life. Our own life is for each of us our contact with reality, our hold upon it. If we can bring our life as it flows itself to consciousness it must be reality in its ultimate meaning that we know—limited no doubt but reality in itself, not an appearance of reality. This is the positive aspect of the doctrine of intuition. And what we learn from

intuition is this, that reality is true duration, change or movement itself, not a succession of changing states or things that are ever passing out of existence, but movement in being and therefore indivisible. The intuition shows us what is, not what was, nor what will be.

But our mind is not naturally formed to grasp reality by intuition. It is therefore only by an effort that we can do so, by straining as it were against the natural bent. Our mind is naturally formed to take views of reality, to frame concepts of reality. Our mind in fact is not fitted to know anything as *present* but only to regard it by reflection when it is passed. Therefore life appears to intellectual apprehension as an extension, as a succession of states. In intuition we see the reality as fluid, as unfixd, before it is congealed into concepts, before even it is perceived as in time and space.

Here I imagine an objection—I will state it as forcibly as I can. “You claim,” it is said, “that it is possible for us in the fact of living and while we live to be conscious of the nature of life and this knowledge you call an intuition, and you say that it is absolute, that it is reality in itself, reality free from every intellectual form. It may be so, but such knowledge can only be personal and incommunicable; nay more, it cannot even be presented to your own mind, that is to say it cannot be reflected upon, it can only be known during the moment it exists and it only exists in the moment in which it is being experienced and there cannot even be memory of it. Nay more, in the moment in which it exists it cannot be absolutely formless. Such a thing is unthinkable. Your intuition, therefore, even if it does exist for you at some moments of your experience, is a fact that is useless both in practice and in theory. There

is no conceivable means by which it could be applied. If it is a fact it is a fact that is unrelated, useless, blind."

What reply is there to this objection? The objection is in effect the argument that the thing in itself is unknowable. The thing in itself is reality without sensuous form and it is this form that makes sensation and therefore knowledge possible. Against this we seem to be maintaining that in intuition we know a reality without form. If this were the meaning of an intuition of reality the objection would be fatal to it. Clearly it is an absurdity to suppose that there can be reality absolutely without form, still more absurd to suppose that if there were we could apprehend it, even by intuition, without giving form to it. But that is not the meaning. There is no formless reality, but there is an apprehension that is not intellectual. The intellect apprehends reality by means of rigid concepts; the more it analyses the more the reality divides up, becomes fixed, in a word materialises, but throughout the analytical work of intellect we may become conscious that something is escaping, something is being missed; this is the movement, the change itself. If the reality is that of our own life—then as we apprehend it intellectually it fixes itself in states; as we analyse the states we distinguish sensations, emotions, desires, all of which stand out before us with fixed characters which we can compare and pass in review. Yet throughout the whole process the reality is flowing; this vital flow itself will not fit into our categories, it escapes us. What intuition does for us is to give us another means of apprehension by a fluid and not a static category; in apprehending our life as true duration we grasp it in the living experience itself, and instead of fixing the movement in a rigid frame follow it in its

sinuosities; we have a form of knowledge which adopts the movement. This then is the reply to the objection. Intuition does not give us formlessness but a form adapted to apprehend life. In intuition we apprehend the moving life of the self, the self that endures.

But now another objection: Suppose it be granted that we have this intuition, yet it is only of our own life that each of us can have it. If metaphysics is this knowledge and can only proceed by intuition, if moreover intuition is of duration, and duration is psychical, is not philosophy condemned to the sterile task of self-contemplation? In other words the challenge is thrown down to us to say by what means we can make application of our principle, even if it be granted to us that it is true. This is the important question for us—for of what use is a principle, however true it may be, that is in its very nature incapable of application?

Although it is only in the simple intuition of the self by the self that we have a fact we can point to as a pure intuition, because, as we have shown, it is only in the intuition of life that we are in actual absolute contact with reality, yet this simple experience establishes the fact that there are two modes of the apprehension of reality, and this discovery is not only of enormous importance but opens an entirely new vista to the human mind. Not only can we apply it, but it supplies us with the key to unlock the most perplexing puzzles of our understanding. We understand why it is that there are two ways in which we may apprehend everything that presents itself to us, everything that possesses the least degree of individuality. We may take views of it, we may go round it and note its relations, its varying aspects, we may frame and fit it into our scheme

of an external order, or we may enter into it, live its life, follow its movement from within. We cannot of course, as in the case of the one unique object "ourselves," actually live its life, but we can enter into it by *sympathy*—make ourselves one with it in order to know its movement. The one way is analysis, the way of the understanding, the way of science. The other is intuition, insight, sympathy—the way of art. These two modes exist together in all human activity. The writer of history must study minutely his documents, must weigh carefully evidence and estimate the comparative value of records, but this is not enough for success; he must be able by sympathy to transport himself within the movement of the period he describes and to see the life of that period unroll itself as it was lived. The painter of a portrait must know how to mix colours and draw lines, how to produce the resemblances which strike us in a picture on a canvas, but the portrait is only successful if the artist has succeeded by sympathy in putting himself within the movement of the living model.

There is yet a third objection. Some one may say: "This that you call intuition is nothing other than what the psychologist names introspection, and your application of intuition is in no way different from the psychologist's application of the introspection of his own mental processes to explain the behaviour of other people whose mental processes he cannot directly observe. What you name sympathy is what we now call empathy." If that is so, the whole case for intuition as a special method of philosophy falls. It is therefore necessary to examine this objection carefully and show that it rests on an entire misconception. Introspection is attention to the workings of our own

mind. It is an inward looking at the processes of the mind when it is perceiving or willing. Except that it is a difficult process, involving, if it is to be psychologically useful, very special training and practice, it differs in no essential respect from the process by which we observe any external object of study. It is external observation although the observer directs his attention to his own processes of observation. It is self analysis, but the self that we analyse is the succession of our states, the processes we distinguish are the separate activities of the mind, and the essential work that we do is to separate out and distinguish within the life of the mind these processes and their conditions. The whole aim of introspection as a scientific method is the advancement of systematic knowledge of the laws and conditions of mental process. Now intuition is the very inverse of this method. What we strive to grasp in intuition is the life of the mind before the mind takes that external view of its own changing reality which breaks it up into states that exclude one another. The mental processes we study in introspection are none the less fixed and definite states of the mind because they are processes. It is the reality out of which this succeeding order of definite states arises that we seek to know in philosophic intuition. We want to know by direct experience the meaning of existence itself. Is the discontinuity of these states real or artificial, and if artificial what is the nature of the artifice? Our doctrine is that the apparent discontinuity of our psychical life is due to the fact that our attention fixes itself on it by a series of discontinuous acts. Our attention is directed to that which concerns our action. But each of the separate states is the singling out or illuminating of a point

in the fluid mass of our whole psychical life. This life is not a congeries of separate states or a succession of events but a continuously moving zone of activity. The whole of our past is present in this zone but not as past, it is manifest in its entirety as an impulse or push, as a tendency, although only a slight and insignificant part may be ever actually in consciousness in the form of idea. It will be said of course that this is merely metaphor. I know it. But we who hold the doctrine say that we can by an effort of the mind obtain this intuition. We can apprehend life before attention to action breaks its continuity, know it not as a succession of states but as the continuous movement or becoming that we name change.

We must now show on what grounds we claim that intuition reveals to us the absolute and ultimate nature of reality itself. If there be two modes of knowing, why should we say of one rather than of the other that it touches the absolute? Why is intuition more reliable or rather more ultimate than intellect? The answer is a plain and direct one. It is that there is no way of passing from immobility to movement. Every attempt of science or philosophy to derive movement is unsuccessful and leads to contradiction, whereas, on the other hand, if movement is original we can derive things. In movement there is *more* than the successive positions of that which moves: in change there is *more* than the successive states of that which changes. Positions and states are fixed and immobile, they cannot give rise to movement, which is something else that has to be added to them. We cannot derive the more from the less. Therefore, if we suppose a reality prior to the arising of movement

and change, it cannot be out of such immobile reality that movement and change have arisen. Suppose we conceive this original reality as material atoms. No quality or attribute which atoms possess can make change or movement arise. Change or movement must be added from without, it cannot be derived from their nature. Suppose we conceive the original reality as the pure forms or eternal ideas of Plato. Change or movement cannot be added to or imposed upon them for such attributes would contradict their nature; change and movement must in such case be held to be a diminution of reality, something that is abstract and relative, an appearance of reality. But change and movement are a fact, and it is impossible to derive them from a reality that does not already contain them. The now familiar illustration of the cinematograph makes this clear. The film with its thousands of pictures lies before us and we pass from one to another but there is no change, no movement. We add the movement, pass the pictures before us by means of a contrivance, so that one succeeds the other, and instead of the thousands of pictures on the film, we have one continuous changing picture. The contrary is the case if we start with the movement, for we can derive the fixed immobile states from the movement by taking views of it. But then the fixed immobile states are not constituents of the movement but views of it. This is the ground on which we say that movement must be original and fixed states derived.

The way in which alone we can obtain an intuition of this original movement is by installing ourselves within it. Theoretically this should be an easy task, practically it is one of great difficulty because to perform it we have to go against the natural bent of

our mentality which views everything, even our own life and consciousness, as fixed and unchanging states. Our intellect takes views of the movement, frames it or moulds it in rigid concepts but lets the movement itself escape. By installing ourselves within the movement is meant that we disregard these intellectual views in order to concentrate our attention on the actual movement itself. It is possible to do this because our own life is a movement, a change. We have therefore only to make ourselves conscious of our own life as it flows. We can form no actual image of it, we can only appeal to it as an experience: at the same time we must have recourse to images, for we have no other way of expressing our own experience to ourselves. I will try therefore to illustrate what is meant by installing ourselves within a movement and thereby to give an idea of the pure duration which can only be known directly in experience and not intellectually. I have to choose an illustration of some difficulty, one that requires a concentrated effort of imagination because we are to realise not only the difference of being within a movement, of being attached to a system of movement, and that of being an outside observer of that movement, but also the illustration must give us the meaning of pure original movement, psychical duration. If therefore we take any movement of translation such as an express train, the earth on its axis or in its orbit, the sun on its stellar course, we shall find it difficult to free our imagination from something moved which will always appear as a condition of the movement. Let us therefore try and put ourselves in imagination within a movement that is not a movement of translation, a movement conceivable but not for us practically realisable, the propagation of light.

A beam of light passing through a prism is refracted into the spectrum, which appears to us as delicately graded bands of colour passing from red at one end to violet at the other. The physical reality which gives rise in us to the sensation of colour is rapid wave motion. The difference between one colour and another is the difference, which can be expressed in an arithmetical computation, between the frequency of the waves. The slowest movement is in the red, the fastest in the violet, and those between are intermediate. In the red it has been calculated that the frequency is 400 billions in a second. To form an idea of this we may make a calculation that if it were possible for us to count these waves at the rate of 2000 a second, which is said to be the limit at which they could become perceptible, it would take 6300 years to complete the enumeration of the waves which occur in one second. This is the slowest speed at which light is apprehended. Consequently when we perceive colour, if this causal theory is true, we grasp or hold together in one single mental act of vision what in itself is this stupendously complex movement, or at least this vast number of separate waves. But whether we perceive this movement as coloured light or conceive it as frequency waves, in either case we are outside observers of it, taking views of it. The actual observation of it as frequency waves is practically unrealisable because it supposes the raising of our powers of discernment to many million times what they are. But there is yet another way in which we may conceive ourselves to experience the movement of light. We may conceive ourselves within it, experiencing it not as something observed but as something being lived. What form would such experience take? How should we experience it if we

were actually living the movement? Clearly we should experience it not as succession but as pure duration. We should experience difference, but in a manner quite other than that in which it could be observed from outside. To us installed within the movement, the movement would be indivisible. We should experience qualitative change as a unity not as a multiplicity. Now carry the illustration one step further. I have already alluded to the new conception according to which the velocity of light is a limit. Installing yourself in the movement you are placing yourself at the limit. Space and time as you now understand them would be gone; they would not exist for a system of movement at the critical velocity. There would be neither distance in space nor interval in time separating events; distance and succession exist only for observers in systems of movement that fall short of the limiting velocity. What is left therefore is the actual indivisible reality itself, which to the outside observer can only be viewed as an extension and succession, a co-ordination of space and time, but to the life within is pure duration.

It is an illustration, nothing more, but it illustrates how different, even to the point of exclusion, the experience of a reality may be for those who are conscious of it in living it, and for those who observe it by taking views of it. In regard to our own life, each of us is in this privileged position; we know it directly in living it, and we observe it as a more or less disinterested spectator. Our intellectual nature is the device by which we observe reality as an external sphere of activity.

If we accept this principle we shall find that we have in it a ground and true starting-point for philosophy. In the consciousness of our own life as duration we

have direct and immediate intuition of reality as original movement or change ; and all those elements of experience which philosophers have tried to distinguish as original—sense data, *a priori* judgments, ideas—are derived from this movement ; they are interruptions of it, or views of it, whose form is due to the selection that the intellectual nature of our activity exercises on it. Such is our fundamental doctrine. Let us now turn to the definite problems of philosophy and see what light it can throw upon them.

CHAPTER III

THE MIND AND THE BODY

“O GOD! I could be bounded in a nutshell, and count myself a king of infinite space, were it not that I have bad dreams.” These words of Hamlet seem to give exact expression to the contrast which we feel when we try to understand the relation between our mind and our body. The body seems to divide the universe into two parts—to shut off one part by a clear and well-defined enclosing line within which is all that is our self, our experience, our consciousness, and without is the external universe. Yet the nature of the mind is to range over infinite space. If it is in very fact confined to, imprisoned within, this nutshell of a body, must not what we take to be the outer universe be no other than our dream?

Although the difficulty is mainly one that concerns philosophy, it is the source and origin of many difficulties in the sciences, especially in those of physiology and psychology. A clear doctrine is an absolute necessity if there is to be any advance in philosophy. In a certain sense the whole claim of philosophy that conscious experience or the knowing of reality is the special subject-matter of metaphysics is at issue. If perception and memory are material things or by-products of material things, originating in molecular

movements, retained in and dependent upon material receptacles, then however convenient and possible it may still be to distinguish the mind from the body, it is clear that the study of the mind can only be a part of the study of the brain and inseparable from it. To study mind apart from the physiological process in the brain would in such case be about as useful as to study the forms of leaves and flowers without reference to the anatomy or physiology of plants. If, on the other hand, mind is a reality of a different order to matter, then whatever be the nature of the relation of the mind to the physiological process in the brain, and however complete our knowledge of that process, it is clear that knowledge of mind will not be included in knowledge of the brain.

It is sometimes urged by psychologists that the relation of mind and body is purely a question of philosophy, and that therefore it need not concern psychology, which can adopt an attitude of indifference to it, or at least if it leans to one theory rather than another, can hold it as a hypothesis which does not commit it to any course that radically affects its subject-matter. This is profoundly untrue, for how can we know the nature of the mind itself except in knowing the nature of its relation to the body? As a matter of fact, every psychologist adopts some theory if only as a working hypothesis.

But whether or not psychology can be indifferent, physiology certainly can not. If it should prove to be a fact that a brain process produces a perception, or a thought, or a memory, if it should prove to be a fact that a region of the brain possesses in its cells or fibres a store of particular memories such that injury or destruction of this region destroys those particular

memories, the proof of such fact would settle the question in favour of the materialist view. We should be compelled to agree with Dr. Maudsley, the eminent exponent of this view. "What," he asks, "is the mind?" "The physiologist," he replies, "answers that it is the brain, not any supposititious metaphysical entity, of the existence of which he has no evidence whatever and of the need of which as a hypothesis he is not conscious." (*Physiology of Mind*, p. 126.) No such fact as we have supposed has yet been proved, though by many it is thought likely that it will be, but there are many facts which make it seem as though the mind is produced by the brain. On the other hand, there are certain reasons drawn from the nature of the mind which make it seem impossible that it can be produced by the brain, and these are the reasons which have led to the formulation of theories of other forms of relation than that of direct causation.

A close connection between the mind and the brain that makes us regard mind as dependent on brain is a commonplace of ordinary observation, independent of any scientific knowledge or particular theory. In ordinary discourse we use the words brain and mind as interchangeable terms, because it is quite evident that where there is deficiency of brain there is lack of intelligence and where there is a high degree of intelligence there is a correspondingly high development of brain. All our science confirms this. The immense advance in recent times in our knowledge of the physiology of cerebral process serves more and more to emphasise the entire and absolute correlation of reason and thought with the disposition and development of cells and fibres in the cerebral cortex. Some-

thing like seven thousand million cells are present, we are told, in the brain of the new-born child, and these, which neither increase nor decrease with growth and age, go through a development of interconnection by means of the branching fibres they send out in every direction. If through disease or malformation or any other cause this development is arrested we have mental deficiency or idiocy. It is certainly a fact then that the amount of the brain or the development of the brain conditions the extent or the development of the mind.

Also there is direct evidence that the brain actually produces particular psychical states. If an electric current is applied to the closed eyelids there is a sensation of colour, if to the ears there is a sensation of sound, if to the tongue or nose there is a sensation of taste or smell. What is apparently one and the same stimulus applied to different sense organs gives rise to different sensations. It seems only possible to explain this as the work of the brain, for when our sense organs are stimulated the stimulus is conveyed by means of sensory nerves to the brain and there gives rise to sensation. Our sense organs are sensitive to different kinds of stimuli, the eyes to light, the ears to sound, etc., but then the brain has only to receive the stimulus through the optic nerve to produce the sensation of sight, through the ear to produce the sensation of sound, and so on, although the stimulus may have in itself none of the things which we distinguish as the sensible qualities corresponding to those sensations. As our knowledge is built up of the data we receive through the senses, it seems to follow that our mind, by which we mean the whole of our organised knowledge, must be produced by the brain.

If the brain does turn the stimuli it receives into

sensations and then build up these sensations into perceptions and retain them as memories, this is only a small part of its work. A part only of the brain is concerned with mental process, and the brain itself is only part of a complete nervous system. A nervous system, or something which corresponds to it, seems to be a necessary acquirement of every living organism that moves freely, and its function seems to be an originally simple one of receiving stimuli from the outer environment and transmitting them to a centre whence a responsive movement is directed. The nervous system is therefore sensori-motor. There seem to be two kinds of response to a stimulus—one immediate and automatic, the other conscious and willed. Only the stimuli that are transmitted to our cerebral cortex, and some only, not all of these, give rise to consciousness; and this consciousness seems to occur just at the moment when the movement along the fibres reaches the cortex, and before it passes to the efferent fibres to issue in muscular action. There appears at this moment a power of inhibiting or delaying the response to the stimulus while consciousness lasts, and consciousness seems to have the function of giving us a choice of the direction which the response shall take.

Then again, if we divide the fibres that connect the sense organs with the brain sensation ceases. If the movement initiated in the sense organs cannot reach the brain, consciousness does not arise. This also seems to point to the brain as the producer of the mind.

Why not? What is the difficulty in supposing it? An effect is produced when its necessary conditions are fulfilled; why should not feelings and thoughts and wishes be manufactured in the brain when certain conditions are present? May it not be the function of

this wonderfully complex organ to produce mind just as other less complex organs produce the secretions that are necessary to the life of the whole individual? Is it only the subtlety and ethereal nature of the product that makes it seem inconceivable that mind can arise from a material process? If so, is there more than a difference in degree between this product of the brain process and the marvellously effective substances secreted by the various ductless glands? The brain is not a gland, but it is an organ of such complexity and perfection that it is hardly possible to imagine a limit to its power.

There are two reasons that must make it seem to every one who studies the problem impossible to suppose that the brain can produce the mind in any way that is analogous to the secretion of a gland or the functioning of an organ. One reason concerns the nature of scientific explanation, the other the content of consciousness. The first reason is that it is impossible to explain anything as the consequence or effect of another thing unless there is some common measure that we can apply to each, and there is no common measure that we can apply to mind and brain. And the other reason is that the consciousness which arises in connection with cerebral process is not consciousness of the cerebral process but of something which is independent of it, something existing in a different part of space, it may be thousands or millions of miles away from the brain, and something existing at a different time, it may be ages before or even after the moment in which the accompanying cerebral process is taking place.

Each of these reasons deserves careful consideration. Causality or the relation of cause and effect is the form of explanation that we apply to all that we experience.

Nothing happens, we say, without there being a sufficient reason why it happens, and when we seek to explain an event we seek to discover this sufficient reason. But the search for the cause of an effect, or the explanation of an experience by the discovery of a sufficient reason for it, assumes a special form in physical science, the form of exact quantitative equivalence between the cause and the effect. This is expressed in the scientific laws of the conservation of matter and the conservation of energy. Wherever we have to do with matter and energy we suppose their amount to remain constant and only their disposition to undergo change. Our body is a material organism that disposes of physical energy, but our mind is not material and does not convert energy, at least not in any way that physical science has yet been able to take into account. Our thoughts, desires, feelings, emotions, do not alter the weight of the material substance that composes our body. If the brain undergoes alteration in the amount of its material or in the activity of its process, the physiologist cannot catch the waste in the form of ideas, nor convert ideas back into brain material, and he finds it very difficult to suppose—indeed sees no reason for supposing—that this takes place by some process of which he is unaware. Such a process is in fact the last thing it would occur to him to look for. Nor yet do these ideas arise by transforming energy and disappear by restoring energy in the form of heat or in any other form that physical science takes account of. The play of *Hamlet*—to take an example—would not have come into existence if there had not been a physiological organ named a brain in an individual named Shakespeare, but in vain shall we look for the conditions of that thinking of Shakespeare in the brain and its processes in the same way that

we may find the conditions of the acting of Shakespeare when he expressed his thoughts by writing black marks on white paper. This is because, wherever physical action is concerned, energy, which we conceive as measurable, is transformed, but where mental activity is concerned there is nothing that we can measure or correlate in the same system with the physical action. But ideas are realities, we are not speaking about non-entities when we speak of ideas. Only, they belong to an order of reality that does not affect the physical order of reality, the reality that physical science deals with. The question therefore is purely one of fact, there is no need to discuss any of the philosophical problems involved in the conception of causality. When excessive light affects the eye there follows immediately a contraction of the pupils, and if that is not sufficient relief, then a closing of the eyelids. The physiologist analyses this fact into a series of events each mechanically determined by the preceding one. If he starts with the light he says that it communicates to the retina a molecular motion which is transmitted by the optic nerve to the brain, from the brain by efferent fibres to the muscles controlling the iris and the eyelid which, by contracting or relaxing as the case may be, cause the iris to close the aperture admitting light, and the eyelid to cover and protect the whole organ. He can pursue his investigation farther—in fact, in either direction, to any extent that he pleases. He can explain the mechanism of the muscles and the supply to them of their energy, the anatomy of the retina and of the nerve fibres, and the nature of their function. Or, on the other side, he may explain the excessive light as due to the solar rays, and these as produced by the rapid movement of the molecules in the solar mass. His

explanation therefore consists in this, that he is able to employ a common term by means of which he can express the exact equivalence of one fact with another. This common term is energy which manifests itself in movement. If throughout the whole series of related movements there is anything that cannot be resolved into movement, then that thing is outside the system and unexplained. And this is the case with psychical reality. Suppose that while the physical events I have supposed are going on, I am conscious. I shall be aware of a painful sensation, aware of the light as a perception, aware of the sun as the object of perception, aware of the immense velocity of the movement of the molecules of its mass and of the consequent propagation of waves of light as my conception of the nature of light, aware also of the response my muscles are making to the stimuli my sense organs are receiving as my effort or conation. This awareness forms a connected series, but it is not, like the physiological process, a series of movements, and it does not intervene in that series, it does not form a link in the chain of transformations of movement that I call causes and effects. The two series are quite independent as series, and the physiological process I explain by the relation of cause and effect, which means that I suppose every state to be the exact equivalent of the movement of the preceding state. But the psychical series I explain by association which is a relation that does not involve the idea of equivalence or measurement.

There is however one important point to notice, and that is that consciousness or mind does not accompany this physical process throughout, starting with it, growing as it develops, altering as the movement is transmitted or the energy converted,

ceasing when the process is over. On the contrary, it comes suddenly into existence at one precise moment in the physiological process and at no other. This is the moment when the movement originating in the stimulus received by the sense organs reaches the cerebral cortex and before it issues in action. It is this fact more than any other, the fact that consciousness springs up at one definite moment of a process, that makes it seem as though it must be an effect of that process or a conversion of the energy in the process. Yet it is impossible that the consciousness so arising can be regarded by the physiologist as a link in the process because the process is complete without it, a series of exactly equivalent causes and effects with awareness supervening but not forming part of the chain. We can no more connect together two physical states by an intervening consciousness than we can hang a coat on the idea of a peg.

Let us now look at the second reason, which rests on the nature of what we may call the content of consciousness, meaning the reality of which we are aware in consciousness. Our body is a part of the universe and, like the rest of the universe, an external object to the mind. Awareness is occasioned by the various influences which affect the surface of our body. Every one of the things we are aware of, supposing of course that there are realities outside of us and that we are aware of them, is outside of the process that is going on in the brain. Even if we include this process as itself part of the universe, we are not aware of it immediately while it is functioning, but reflectively in explaining to ourselves the function of the brain as an object independent of our consciousness

of it. Whatever, therefore, the nature is of the processes that are going on in the cells and fibres of the cerebral cortex, it is impossible that we should be aware of a real world outside the brain, and also that that awareness should be something produced or manufactured in the brain. If we really could believe that our mind was produced in and by our brain, that the brain cells manufactured it or constructed it out of movements sent to it from the skin and sense organs, we could have no assurance that we had any knowledge of reality or that there was any reality to know. We might of course suppose, as some philosophers in former times supposed, that God performs a miracle every time we know anything, and that our only guarantee that there is any world independent of our knowledge is our faith in God that He does not deceive us. But considered simply in itself, and according to the rules we apply to all our deductions and inferences, if the mind is only a product of the brain it is then something potentially present in the brain or present in the materials supplied to the brain before it is actually produced, and this something cannot be what is happening outside the brain, or that did or will happen outside the brain. It is not the process going on in our brain that we are aware of but the process going on outside our brain; and although influences reach our brain from outside and although the physiological processes are directly connected with the outside world by the sense organs, yet these influences are stimuli which cannot be conceived as translating anything, even images of things, into the brain as material out of which the brain might be conceived to produce the mind.

But perhaps it will be said that the brain may

quite well produce the mind without doing any manufacturing process whatever. No one, in fact, imagines that mind is produced by the brain in the same way that substances are synthesised in a chemical laboratory. The brain is the outcome of a long evolution. Its function has been acquired and elaborated in the course of its development by natural selection or by whatever other conditions we may suppose to have operated. May not part at least of this development be its adaptation to produce appropriate symbols in response to sense impressions? May we not conceive that the brain has associated these responsive symbols and combined them into a representation which is a true counterpart of the external world? The brain in such case does not manufacture ideas out of its own substance or out of the alien material supplied to it, but it is none the less the true and efficient cause of the mind.

There is in such a view something that is undoubtedly in accordance with experience. A sense impression on our body is an invitation to action; it is only from the brain that the responsive action can emanate, and in all voluntary action the appropriateness of the response clearly depends on some idea or symbol of the coming action, and also the sense impression can only be an invitation to action if it evokes an idea or symbol of the external influence that has originated it. We are to suppose, then, that it is the function of the brain to respond to sense stimulus by giving rise to a symbol or idea of external reality, and that in the course of evolution the adaptation of this symbol or idea has become ever more adequate. Does this way of stating it avoid the dilemma in our second argument? Clearly it does not. One horn of the

dilemma is that what is produced in the brain must be potentially present in the brain or in the material supplied to it before it is produced. The other horn of the dilemma is that what is potentially already in the brain cannot be the revelation of what is outside the brain. Either, therefore, the physiologist is wrong when he declares that there is nothing but the transmission of movement in the neuro-cerebral processes, — some at least of the vibrations that reach the brain must be more than vibrations for they not only transmit movement but convey to the brain ideas of the external world or material that can be formed into such ideas, — or else these ideas are already potentially present in the brain when the movement which evokes them reaches it. If we take the latter view we can adopt the theory that natural selection has secured that the response to the stimulus is useful to us in serving our action, but we shall still be unable to understand or explain how an idea formed in and by the brain can represent a reality not in the brain. If, therefore, we believe that the brain produces the mind we must admit in effect that it produces what we call the external world ; if, on the other hand, we believe that we have knowledge of a world that is not confined within this nutshell of a body, then we must admit that the mind cannot be produced by the brain.

These two reasons are, as I have said, unanswerable. The first may be summed up by saying that the chain of causes and effects in the physiological process of which the brain is the centre is complete without the intervention of the psychical process, while the psychical process of consciousness, though a connected series of events, is not a relation of effects to causes but an

association of ideas which involves no conversion of physical energy. And the second may be summed up by saying that knowledge, if it is knowledge of what is outside the brain, cannot be manufactured by a process inside the brain. It is admitted, therefore, practically by every one, that consciousness is not an effect of process in the cerebral cortex in the same way that the responsive movement of the muscles is such an effect. The brain directly connects the response of the body to the stimulus received, but the consciousness that arises in the process is not part of the efficiency. Yet this consciousness is certainly not independent of the process (for if it is, why does it arise at one moment and at one moment only of the process?), and so it has been suggested that it may be an effect of a different kind, an effect which does not absorb energy nor give out energy, but still a direct effect of the cerebral process. It is said to be an epiphenomenon, and is compared to the shadow that accompanies a moving body which neither aids nor hinders it though invariably accompanying it, or to the phosphorescence left along the track of the lucifer match we have struck, a one-sided effect that cannot in its turn become a cause.

This theory is widely held and is considered by most of those who support the materialist, or what is now more generally called the mechanist, view, to meet all the difficulties which are involved in the conception of the mind as an effect or product of processes in the body. We may grant at once that so far as the first difficulty we have noticed is concerned the conception of the mind as an epiphenomenon of the brain is a possible one. It may be that there are after-effects of brain processes which, though the direct effect of

physical movements and of the conversion of energy, are yet not themselves an absorption of energy and do not therefore become an actual calculable part of the causal chain. We could explain in this way why consciousness is not measurable in terms of physical movement, although a product of physical movement. Moreover, so far as consciousness is simple feeling, pleasure and pain, something without distinguishable content and purely an affection, the conception might suffice. But when we consider the real nature and content of consciousness—the second of our difficulties—the conception becomes impossible to the point of absolute incredibility. Think what this phosphorescence must be and do. It springs up along the track of a nerve current through the cells and fibres of the cerebral cortex, and when it springs up we are conscious—of what? Of the passing nerve current? No. Of the fact that it has passed? No. Of the stimuli that originated it on the surface of the body? No. Of the direction towards the muscles which are to be set in movement? No. We are not aware of any of these things that actually are occurring, the consciousness of which if we had it might perhaps be epiphenomenal, but of the world outside us, of the world outside the nerve current altogether, of other persons and of other things than the body and its processes, of things like stars infinitely distant in space, of recollections, of thoughts of things that may have happened at a time infinitely remote from the moment when the passing current which occupies a limited portion of space and occurs at a definite moment of time gives forth its luminous trail.

This is the rock on which all these theories that derive mind from body split. We wish to derive a reality that is unconfined in space and unlimited in

time from a reality that is limited to a definite portion of space and to a moment of time. Suppose we succeed, we are then in this extraordinary dilemma that the only actual fact is the brain process with its epiphenomenon, and therefore the reality we are aware of may be a pure illusion, for the fact cannot guarantee an existence independent of it, and yet at the same time our only knowledge that there is a brain process with this consequence is an inference from the reality we falsely suppose ourselves to know. The argument therefore is a vicious circle. How do we know that there is a world outside of our body of which the body is a part? Because a certain process is taking place in a certain portion of our brain. And how do we know that this process is taking place? Because we know that there is a world outside of our body of which the body is a part.

There are other theories besides the theory I have been discussing which have been proposed as an explanation of the necessary connection of mind and body, but they come to grief on the same rock. There is the very attractive theory of double aspects—very attractive because it seems to explain the apparent dualism—according to which there is only one fact but a fact which assumes two aspects, a psychical aspect as consciousness, a physical aspect as movement or brain process, just as the movement we see from the shore as the ship tossing on the rolling billows is the same movement which in the ship's cabin is felt as conscious experience. Then there is the mind-stuff theory, according to which there is a substance of which every mind is composed which is as universal as material substance, a stuff of which every molecule, atom, and electron has its share. I need not go into these theories in detail because it must be obvious that they will be confronted with the

same difficulty we have been examining, the difficulty that it is the nature of mind to be aware of reality that is not contained in, nor commensurate with, the physical processes in the brain.

There is another way of approaching the problem of the relation of the mind to the body—a way that has peculiarly distinguished philosophy. In the ordinary view which we call common sense and also in the explanation which we seek to discover in physical science, we assume that there is a reality independent of, and a prior condition of, the awareness of it which we call knowledge. May not this assumption be the true source and origin of our difficulty, and, whether or not the assumption is warranted, ought we not at least to start with no assumption at all, but with the simple fact of conscious experience itself? Let us then take this consciousness as the only thing and question it and analyse it to see what it actually itself tells us of its object. How will the problem of mind and body arise in this case, and what form will it take?

This is the point of view from which the English philosophy of the eighteenth century approached the subject. It is usually called psychological idealism. To a certain extent it is also the starting-point of the transcendental idealism of the later German philosophy. Consciousness, it was said, is the only immediate datum of knowledge and *percipi* the only meaning of *esse*. Whatever anything is or whatever we may come to think we are justified in inferring that anything is—so ran the argument—primarily it is a perception to the mind, it is conscious experience. It was not meant that a knowledge of our self preceded our knowledge of external things, that we recognised a self, or subject,

or ego, or soul, as the basis of reality, and that all reality was therefore a state of this subject. It was not meant that perception was a mental state essentially subjective and that objectivity was something added to it by the mind. It was meant simply that the reality we become aware of is conscious experience, that this experience as consciousness, or awareness, is a perceiving and as content, or quality, or character, is a percept. So Hume began his *Treatise on Human Nature* with these words—"All the perceptions of the human mind resolve themselves into two distinct kinds, which I shall call *impressions* and *ideas*." And Schopenhauer began *The World as Will and Idea* with this passage—" 'The world is my idea' :—this is a truth which holds good for everything that lives and knows, though man alone can bring it into reflective and abstract consciousness. If he really does this, he has attained to philosophical wisdom. It then becomes clear and certain to him that what he knows is not a sun and an earth, but only an eye that sees a sun, a hand that feels an earth ; that the world which surrounds him is there only as an idea, *i.e.* only in relation to something else, the consciousness, which is himself." If now we take this standpoint we must hold that our body, our brain, the cerebral process in the brain, the movements of the molecules and atoms in the nerve substance, all these are, in the words of Berkeley, perceptions of the mind ; in the words of Hume, impressions and ideas ; in the words of Schopenhauer, our ideas.¹ If we wish to avoid all possible ambiguity we shall say they are perceptions to a perceiving. If now, adopting this standpoint, I say that all the things or objects I perceive *are* my perceptions, I find that there are certain of these perceptions

¹ *Vorstellungen* not *Ideen*.

that stand in a special relation to all the other perceptions, for it seems to be by means of the perceptions I call my body that I perceive any perception, even that I perceive the body itself. In consequence I find that I arrange my perceptions in two orders ; in one they all seem to vary in relation to one perception which is always their centre, to be in fact dependent on it and mediated by it, and in the other they seem to have fixed and independent relations among themselves and to act and react on one another according to constant laws which I call laws of nature. So there arises even for idealism, which refuses to recognise any reality but that of conscious experience itself, and for which all reality is the mind and its perceptions, a problem of mind and body. But the problem presents a new form. It is no longer how a reality conceived as physical can produce, as it seems to do, a reality not physical but psychical. It is the problem how one group of my perceptions can stand in a special relation to all my perceptions, itself included, so that the latter depend for their existence on the former.

All the objects I perceive are from this point of view analysable into perceptions, and no perception as such has any privilege over another perception. Yet I perceive one group of my perceptions to have a peculiar relation to all my perceptions, such that it seems to me to be not only a perception like other perceptions but a means of perceiving. It is only by perceptions that I perceive my body, and it is only by my body that I can have any perceptions at all. It is this fact, this perceived fact, that gives rise to the twofold order in which I range perceptions—one a physical order in which they maintain fixed and independent relations to one another, the other a

psychical order in which all vary and change, in fact exist, in relation to one group of perceptions which is always their centre. What I call the body then cannot produce my mind, for the body *is* only what the mind perceives and only one of the mind's perceptions. Can it be the mind then that produces the body? How can it be? For from the standpoint we are considering the mind is not a substance independent of its perceptions. So far as it is a distinct object, awareness of it must itself conform to the principle that *esse est percipi*.

My purpose is not to defend or criticise the doctrine of subjective idealism but to show that it offers no escape from the problem of the relation of the mind to the body. Whether we approach this problem from the point of view of science, that is, starting with the recognition of physical reality, or with the philosopher's resolution to assume nothing that is not an immediate datum of conscious experience, it seems impossible to explain the relation of the mind to the body as one of direct causation. It is equally impossible to conceive that the body produces the mind or that the mind produces the body. But if we reject the notion of direct causation we seem to be left with two alternatives and two alternatives only; one that there are two orders of reality which are parallel, the other that there are two orders of reality which interact.

According to the theory of psycho-physical parallelism every psychical process is accompanied by a physiological process, every psychical change has a parallel physiological change, and the same physiological event in the brain is accompanied by the same mental state and by no other. Physiological processes in the brain are of course material, that is, they depend alto-

gether on the disposition of atoms and molecules, and the theory is that whenever a certain disposition of atoms and molecules is repeated, the state of consciousness that accompanied that disposition is also repeated. Neither causes the other, but each invariably accompanies the other. It follows, therefore, that could we observe the movement of the nerve elements in the brain and possess the key to interpret them, then by seeing what was in the brain we could know what was in the mind, and consequently as what is in the mind is awareness of the reality outside the brain, we could know the state of the universe. If it is thought that this is more than the theory involves, it is easy to show that it must either mean this or it can mean nothing. For it is clear that if we suppose there can be even one mental state without its corresponding cerebral state, or even the very slightest mental change without a corresponding cerebral change, the whole case for parallelism is gone. Now it is often represented that parallelism is not a theory at all but merely a recognition of certain undeniable facts. A very slight consideration however will show that it goes far beyond anything that experience does or ever can justify. It is a fact of experience that mind or consciousness is always found associated with the functioning of a brain. But it is much more than this that the theory requires. It affirms a one to one correspondence between a mental state and a bodily state. The theory is in fact a purely metaphysical theory which had its origin in the philosophical problems of the seventeenth century. It did not arise out of scientific difficulties. It was prior to any of the modern discoveries of the structure and function of the brain. Yet the advance of physiological science has not affected its adaptability nor thrown it out of favour as a proposed

solution of a present problem. It arose originally as an attempt to harmonise the existence of two substances conceived as entirely disparate in their nature, thought and extension, and to understand in what way one could represent the other. Descartes supposed that knowledge was rendered possible only by a direct divine intervention, that God modified the mental substance to correspond with every modification in the extended substance. Leibniz thought it more reasonable to suppose that God had originally created the two substances and so contrived them that they must always correspond. In a famous illustration he compared this act of creation to that of a clever artificer who should make two clocks, each constructed to work independently of the other but each keeping perfect time; a state of one would always correspond to a state of the other.

When we examine its modern application, the hypothesis of an exact correspondence between a change in the body and a change in the mind presents formidable difficulties, scientific and philosophical. Let us look first at the scientific difficulty. One fact seems certain about the mechanism of our nervous system, and that is, that however marvellous its structure and complex its function, nothing enters it or leaves it save in the form of movement. The movements in the nervous system do not originate within it; they are part of an infinitely greater whole. Now the theory requires us to suppose that this small part of a whole movement is the exact equivalent of the whole movement. I perceive the stars scattered over the firmament on a clear night and think of suns and planets and vast distances in space. The theory tells me that with this mental state there is a corresponding condition of my cerebral cortex, such that a supposed superhuman observer, able to look

into my brain and interpret the movements of the molecules and atoms, might by what he saw there know my perceptions and thoughts. Now if this be so, then as nothing enters my brain from without except as movement, I must suppose that the actual movement in the brain is not only continuous with the movement in the world without, but also an exact equivalent of it. There are three things: first, the reality I am aware of, the starry firmament; secondly, my awareness in the form of my perceptions and thoughts; and thirdly, the activity of the material elements that compose my brain. If then this third thing, the activity in the brain, is in a one to one correspondence with the second thing, my consciousness, it must be because it in its turn is in a one to one correspondence with the first reality, the starry firmament. Now, were the brain a mirror of the universe this would be intelligible. But then also there would be no meaning in parallelism, for the parallelism would not be between body and mind, but between mind and the whole of reality. But, according to science, the brain is not a mirror into which reality is reflected. A movement communicated from outside passes through the brain, that is all. Movement is of one kind, it is not qualitatively distinguished. Consequently, if a movement passing through the brain corresponds one to one to a perception or thought in the mind, it can only be because that movement is in some way exactly equivalent to the qualitative differences of the reality it represents. That would be to conceive it at the same time as only a simple movement and also as more than a movement. This difficulty has been recognised by some physiologists, who have formulated a doctrine of specific nervous energies to meet it. They hold that each sense organ imposes a specific character, it may be

chemical or it may be physical, on the movement it originates. This may meet the difficulty so far as differences of sensation are concerned, but it leaves the difficulty of perception unaffected.

This is the scientific difficulty, but there is a philosophical difficulty in the theory much more fundamental. If the mind is correlated with a process in the brain, which process is a part only of reality, what is there to prove that the part is not the whole? If it is the exact equivalent of the whole, then to us it is the whole. There may be no starry firmament, no suns, no vast interstellar spaces when I am perceiving these and thinking of them. My perceptions and thoughts do not guarantee them, for if there be a certain disposition of atoms and molecules in a certain region of my brain I shall have these perceptions and thoughts. Indeed, the superhuman observer I have supposed to be looking into my brain would know a consciousness without any physical counterpart in the external world if I happened to be dreaming. How would he distinguish between dream consciousness and waking consciousness? He could not distinguish, because for him there would be no difference; the brain would be the whole, it would be the only physical reality corresponding with the psychical reality. We are surely justified in rejecting absolutely a hypothesis which involves the theoretical absurdity that the part is the whole.

The alternative to parallelism is that the two different orders of reality, the mind and the body, interact with one another. A difficulty of another kind meets us here. Interaction is generally conceived as the kind of relation there is between a machine, say a motor car, and the engineer who controls it, say the driver. The

motor is a system complete in itself, the driver adds nothing to and takes nothing from the work that it does. This is accounted for by the conversion of the energy of the fuel supplied to it. What the driver does is to guide and to control. This entails, it is true, an expenditure of energy by the driver, because the opening and closing of valves, the turning of a steering-wheel, the timing of an explosion, all involve work, yet the amount is not only very small and practically negligible, but it forms no actual part of the work which the machine is contrived to perform. If the valves are frictionless the amount of energy the driver is required to expend is almost nil. We have therefore in the illustration a case in which two independent systems interact, and in which the amount of physical energy expended by the one is out of all proportion to the effect produced in the other. May not this be the case with mind and body, the work of the mind being the releasing, or the retarding of the release, of the energy stored in the body, and may not this enormous disproportion between cause and effect be the reason we suppose that the mind does no work? The slight pressure of the finger on a button at Washington released the energy which blew up the final dyke and admitted the water to the Panama Canal, uniting two oceans. Not only is the disproportion in the amount of energy beyond any conceivable calculation, but the energy expended in the release, infinitesimal though it was, formed no part of the energy controlled. Perhaps then it is work of this kind that the mind does—infinitesimal in amount as measured by any standard of energy expended in work done, but work that owing to its nature and function is absolutely disproportionate to its effect. If this be so, there is no absurdity in the

famous argument that led the inhabitants of Samuel Butler's Erewhon to destroy their machines. But it is just in this that the analogy of the motor car and its driver fails altogether, and serves rather to show the difficulty of conceiving interaction than the manner in which it can be supposed to take place. However infinitesimal the amount of energy required in guidance and control, nevertheless it is physical energy. It is not, however, the thoughts, feelings, perceptions or desires of the driver that supply this energy which guides or controls the motor car, it is his muscles. Psychological activity is of another order, and the question is not therefore—may a very small expenditure of energy determine the direction of work accomplished by a disproportionately greater amount? It is, can psychological activity undergo conversion into physical energy? Now it is at least very unlikely that, if such a conversion does take place, the only reason why it has remained undiscovered is its infinitesimal amount. Of course it may be so, and experiment may possibly demonstrate one day that it is so, but at present we have no evidence of it, and psychological activity is so real, and so different in character from physical action and reaction, that we are not justified in the absence of evidence in assuming a conversion. Those who hold the theory of interaction are consequently driven to suggest a hypothesis of compensation in order to preserve the apparent universality of the law of conservation of energy in physical science. They suppose that every conversion of psychological activity into physical energy is accompanied by a corresponding conversion of physical energy into psychological activity, so that the amount of each is always constant. Such a theory may obviate the absurdity of parallelism, but if we are to

apply it to every case of conscious action we must recognise that there is very little in experience on which to ground the theory. Yet it is not to be denied that interaction between mind and body in some form is exceedingly probable if not absolutely certain. Indeed, if we were content with the argument, "what must be, is," we might reason very strongly in its favour. It is, however, just one of those doctrines which we feel ought to be demonstrable by experiment if it be true, and the experiment that will prove it has yet to be made.

In all the theories we have reviewed one thing is very noticeable, namely, the complete absence of any attempt to discover the standpoint from which the unity of the two different orders of reality, mind and body, is not merely a fact but a necessity. The mind is accepted as a power that some creatures have acquired of being aware, of knowing, and it seems that somehow this qualification has been added to them in order that they may contemplate reality. And so there seems to be a new order of reality representative of the actual order of physical reality. The relation of these two orders then becomes mysterious, and it seems as though it ought to be, and must be, possible to state the one in terms of the other. Either the mind appears as something quite unnecessary that has been somehow or another added to the body, or the body appears as something encumbering and clogging the mind. Some try to discover why the body has a mind, others why the mind has a body. And the attempt of parallelism to reconcile the conflicting views, to suspend the judgment while provisionally accepting the self-sufficiency of each, may be fitly compared to the inconsistency that underlies the widespread popular notion of Providence, according to which every-

thing that happens depends altogether on the personal will of a Divine being, whilst at the same time everything is believed to be entirely subject to an order of physical conditioning. And yet the essential fact as to the relation of mind and body may be said to stare us in the face. Living action is essentially a relation of mind and body, and wherever this action is voluntary, wherever it supposes choice, it must be conscious. A simple glance over the world of living forms shows us this. Consciousness, and the nervous system by means of which it functions, come into existence to meet the need for free activity. The plant has not this need, it gets nutriment from the soil and the air; the animal must go in search of food. With the need of movement arises the nervous system which develops step by step with the action at the animal's disposal. The form that mind takes in its highest development and the form that matter takes in its organisation in the body are relative to and correlative with the action at the disposal of the living being.

Viewed from the standpoint of action the problem assumes an entirely different aspect. Instead of two kinds of reality which have to be accepted as given facts, and a relation between them also to be accepted as a given fact, we see in living action the fundamental fact of which the union of realities of two orders, mind and body, is an essential and necessary condition. This union is a solidarity. Unfortunately, this word has recently become a common expression, and, as so often happens, in acquiring wide currency has tended to lose its distinctive meaning. It has come to mean any sort of mutual support which individuals or classes or communities lend to one another. Its original meaning may be illustrated in a business partnership. A

partnership is a solidarity when each individual in it has special and particular duties, a special sphere, and a special interest, all of which form part of a common purpose apart from which it is meaningless, then the act of each partner is not an individual act but the act of the company. A partnership is not a solidarity if it is merely an arrangement to share profits, but only if there is a contribution of activities to secure a unique result. The action of a living organism is a solidarity of life and matter, of mind and body. The two realities, the psychical and the physical, are distinct, they belong to different orders of existence: one the mind, is a duration, a time continuity; the other the body, is an extension, a space continuity, a material mechanism contrived for the storage and utilisation of energy. They meet, like the tangent and the circle, at one point, and at one point only; that point is action. In action they are solidary—one cannot function, has no meaning, without the other. Without the body the mind can do nothing, and therefore from the point of view of action in which being is doing, it is nothing; and without the mind the body is not a directed mechanism, an instrument of action; it is inert matter, and therefore from the standpoint of action it is nothing. The mind is continuous with an infinite past, the body is continuous with an infinite present, and the ever-moving point at which these two realities meet is the present centre of action. The full significance of this doctrine, however, will only appear when we see what is implied in the notion of living or conscious activity.

CHAPTER IV

MATTER AND SPIRIT

SUPPOSE we are observing a continuous radiation of energy from a centre outwards in all directions,—a centre of light, or of heat, or of electricity, or of gravitation, energy of any kind. Imagine that nothing is interfering with it, then at any distance from that centre we can draw in imagination the surface of a sphere through which the radiation is passing from its originating source at the centre. Clearly, the forces passing through the surface of a sphere whose originating source is at the centre, will be exactly equivalent for every surface at whatever distance from the centre it is drawn ; as we go further from the centre, what we lose in intensity we gain in extensity ; as the forces are spread out they are less concentrated and so weaker. Suppose, for example, that the centre is an electric arc radiating light in all directions. The nearer we go to it the intenser is the light, and the further we move away from it the weaker is the light ; but the weakness is due to dispersion, what is concentrated in an inch, when we are observing it at that distance, becomes dispersed over a yard or over a mile as we go away from it. If we imagine this centre radiating energy continually into empty space, that is, meeting no opposition, it will clearly extend indefinitely.

It will pass out into space in an ever-widening circle. But for me, the observer, it is clear that there will be a limit of dispersion beyond which the energy will be practically lost, and as I approach the centre the zone will become more and more definite till I reach an intensity which will be so great that I can penetrate no further. This zone will then appear to me—must appear to me—to be solid. We may illustrate it with regard to any natural object, the sun for instance. What appears to us as the solid, glowing mass of the sun is the gaseous envelope which to other observers may be invisible, if their powers of penetration are greater than ours, or, on the other hand, may, if they are less than ours—light, ethereal creatures outside our system, to whom our system itself appears as solid—be hidden within a solid mass.

Now, suppose that there are many such centres of dispersing energy in the universe, and that they repel one another—it is then clear that the dispersing energy which now will meet resistance will, wherever it meets such resistance, be reflected back upon itself. The result of this will be that each centre will be surrounded with a zone which will be a dividing line where its forces are seeking to disperse and finding resistance from other forces, and where equally the other forces are finding themselves excluded from it. Now, we have only to suppose these conflicting forces reaching an equilibrium, and we have what must appear to an observer without as a mass, a group of solid bodies mutually exclusive and together filling space. And the effect of this interruption of the dispersion will clearly be to force back on the centre the dispersing energy, and so further consolidate, materialise, objectify the centre.

But now, how will these centres of dispersing energy appear if observed from within? Suppose one of them is a mind and conscious of itself—it must appear to it that the zone of conflict is the sphere of its activity, it is there that it will seem to be acting, and this zone of conflict will appear as an envelope round it, sharply dividing it from the outer universe, and the reflected forces will appear as the instrument of its activity.

We are each one of us in our ultimate reality a movement, a centre of the gathering up and dispersing of energy, such as I have tried to picture. My illustration is necessarily a spatial one because I have framed it on a physical concept. I must not, however, be thought to mean that life is spatial. Change or movement, in the view I am putting forward, is the reality of the universe, and this change is the true duration we realise as life. It is the source of space and succession. In living creatures, in individual human beings such as we are, life is manifested as a continuous dispersing of activity from a centre. At the centre there is a movement of concentration, a tension, and from the centre a dispersion, and this activity forms our life. At the focus the activity of life exists as an impetus, an impulse, a springing up of energy which expands and spreads forth. Our body is the self-determination of that activity, the instrument of it, the actualisation in organisation of the impulse. It is formed out of it, created by it, moulded and adapted to gain for it the greatest advantage. It is formed for action, and its form is determined both by the hostile forces against which it presses and by which it is thrown back on itself, and by the force that is ever pressing it outward from within. Were there no concentration of the impetus there would be no mind, were there no

interruption to its dispersion there would be no body. Viewed as a centre of activity it is one with universal life. Viewed as an interrupted movement reflected back on itself it is an object among other objects.

Of course I am presenting only the bare outline of the theory. I am presenting it as though the living soul were only a simple centre of the dispersion of homogeneous energy and the body the reflection of that energy. The living acting soul is infinitely complex, but what I want to emphasise is, that if my description fits possibly the construction of an atom of hydrogen, the principle is the same, and there is only a difference of degree and not of kind between an atom of hydrogen and a human soul. The reality is the activity which springing forth meets opposition and is reflected back on itself, and forms at last out of this very defeat the effective and marvellously contrived instrument of activity, the human body. This then is what the body is—an instrument of activity, formed, created, adapted by the living impulse for action and for action solely.

We distinguish our mind from our body by the nature of the unity we attribute to each. The body is material, the mind is spiritual. Matter is essentially spatial, and as a material thing our body is a spatial unity. Without life we conceive it as occupying a certain space, and this space occupancy is the exclusion of other matter from that space, other matter with which the material body is spatially continuous. Duration is not essential to it, for as matter we conceive that all its reality is simultaneously present at every moment. It exists even at the point without duration which divides the past from the future, the abstract present. It has a history, for we connect it with successive states of the universe in a causal relation, but

as the actual reality which it is, duration forms no part of its nature but spatial continuity purely. We conceive it as existing absolutely in a simultaneous cross-section which we may imagine to be made at any moment through the whole of reality. Not that it does not undergo change, but that the reality thought of in the body, and in every other material object simultaneously existing with it, is an absolute space occupancy and nothing else. Our mind, on the other hand, is a temporal reality, duration is essential to the conception of it, and it is not extended. A simultaneous cross-section through space such as we have just imagined, or an exhaustive apprehension of all that occupies space, would reveal all the matter existent in the universe, but would not reveal mind. On the other hand a cross-section through time would reveal mind, but would not reveal body.

I can easily test the truth of this. At this moment I am seated in my room and my direct perception of the external world is confined to its walls, but I know that outside the walls are the streets with their traffic, and that these streets are continuous and form part of London, which is also part of England, and so on. To get direct perception of these places will require time. It will take me from twenty minutes to half an hour, according to circumstances, to go from where I am to Charing Cross, and I cannot make even the smallest movement without occupying time, but I do not imagine that Charing Cross is non-existent at this moment and can be made to come into existence in, say twenty minutes. Such an idea is absurd, because I conceive material existence as determined absolutely at every moment by its position in space. Memory and imagination have absolutely nothing to do with

this spatial reality. Let me suppose that memory and imagination are non-existent, blotted out of the reality of the universe, the material reality I conceive as existing at this moment is entirely unaffected. But to suppose the annihilation of memory and imagination is to suppose that there is no mind to think about this matter. Consequently to think of matter requires time, but the matter thought of in no way depends for its reality on the time occupied in thinking of it. The perception of matter is the perception of what is essentially instantaneous, a space span; the perception of mind is the perception of that which is essentially duration, a time span. In the moment of experience these meet and intersect. At every moment there seems to us to be a spatial existence of which our body is the immediately perceived centre, and from which there spreads around us a simultaneous material existence, and a temporal existence of which our mind is the centre, and which spreads out behind us in the past and before us in the future. This unity of space and time is realised by us in the unity of body and mind, in the action of each present moment of experience.

In living experience neither the spatial reality of which our body is part, nor the temporal reality of which mind is a part, exists without the other, yet the spatial reality seems to have so far greater a substantial basis of existence than the temporal reality has, that we ordinarily think of it as *par excellence* the reality. This prepossession of our mind in favour of spatial reality is the basis of all materialism. It seems natural to the human mind to suppose that the spatial qualities of things, what are called for that reason the primary qualities, — shape, resistance, solidity, — are more ultimately real than the secondary qualities—colour,

odour, taste, etc.—and the conception of the unity of space seems to establish this reality. Whereas there seems no such reality in the time stream, and memory seems therefore to rest for its support on the material body. We shall consider this later when we come to the theory of memory. What we have now to notice is that the union of mind and body is the meeting point and condensation round a centre of activity of two realities, one of which is spatial and experienced as extension, the other temporal and experienced as succession. The one we experience as perception, the other as memory. The one we call physical reality, the other we call psychical reality.

We may now turn to the special problem of the mind and the body, and we shall see that guided by these metaphysical principles a very definite and clear notion can be attained. How is it that one object, which in other respects is not different from other objects, can possess the power of perceiving other objects, and by what means does it retain and revive, in the form of memories, its perceptions of other objects? The difficulty of giving an answer to the question we have seen to be the impossibility of imagining, or rather the paradox involved in imagining, that any organism however complex, or any process or manufacture, can produce such existences, for if they are manufactured out of the movements in the brain we must explain how and why they represent objects which are not in the brain. The moment we take this standpoint of action the whole matter is altered. We see that such a function as the manufacture of perceptions and memories would be useless and purposeless even if we could suppose it to occur. Action is the immediate response in movement

to a present situation. We conclude, therefore, that perceptions are not manufactured in the body or the result of any process which goes on in the body in the sense that given the process there will result a perception. Memories are not stored in the body either in special memory cells or as traces left on the path of nerve movements. The body is organised for action, organised to receive and to respond to stimulus. It consists, as we have seen, of an enormously complex system, and the sole function of this nervous system is to secure that the right response follows each stimulus received, with a view to maintaining the creature in its sphere of activity. The brain is a great organ of exchange, similar in nature to an electric switchboard, and its highest development is in creatures that possess the greatest choice of free movement. This is borne out by a study of the comparative development of the nervous system. We find that it comes into existence in the living order only in the development of those living forms which have become endowed with free mobility, and it seems to develop concomitantly with the function of freely moving in space. Its higher development in the form of brain corresponds exactly with the amount of freedom, with the hesitation and choice, which the creature disposes of.

If we go to the physiologists this is the account that they give of the function of the nervous system. A stimulus is received by a sense organ, and is transmitted by afferent nerves to the centre—the spinal cord or the brain—thence immediately it is transmitted by efferent nerves to the muscles which it stimulates to action. The movement results in movement, and is calculable from beginning to end. If it is interrupted in its course it is dispersed into subsidiary movements, or its energy is

transformed, but there is no break in the physical account of the energy. But we find also that within the progress of this physical movement there has arisen at one part of its course an existence of a quite different order, a sensation, something we distinguish as mental. It seems to have been conveyed to the brain by the afferent nerve, and to have become part of our consciousness when the stimulus from the sense organ reached our brain. Immediately following that sensation another psychological existence arises, a perception. This apparently occurs before the efferent nerve from the brain carries the stimulus to the muscle, and it seems to have the function of intervening to direct and control the outgoing movement conveyed by the efferent nerve. The physiologist can neither account for nor understand these psychological existences which have no efficiency so far as anything he studies is concerned. For him, as we have already noted, they are epiphenomena, by-products. They seem to be caused by the physical movements, but not to divert any of their energy and not to exert any power in themselves of creating or annihilating physical energy. They are compared to the phosphorescent glow illuminating the track of a movement, or to the screech of a steam whistle. But perceptions are not the only kind of event that the physiologist has a difficulty in accounting for. Perceptions evoke memories. Memories cannot possibly be made in the brain at the time when they occur, nor yet can they be accompaniments or epiphenomena of the movements actually taking place in the brain, because they are records. It is supposed, therefore, that perceptions leave records of themselves in the brain, and that these records are preserved either by being locked up in special cells, or else by leaving traces

like wheel tracks on the path that the movement which the perception accompanied has travelled. Their revival is difficult to explain. When a perception occurs as the result of, or as the accompaniment of a brain movement, it tends, it is supposed, to awaken the records of similar perceptions which have gone before, and these awaken the records of perceptions which, though perhaps quite unlike them, were yet experienced in association with them.

These difficulties of the physiologist simply vanish when we approach the question of perception and memory from the standpoint of our doctrine, that there is solidarity of mind and body in action. There are philosophical problems and difficulties regarding both the nature and origin of perception and memory which we shall deal with in the next chapter. For our present purpose we need not raise the question of nature and origin at all, we need only accept the fact that they exist, and assume that they are, what common sense supposes them to be, conscious knowledge of what is around us in space and of what has happened to us in past experience. There are then two questions in regard to them that require an answer. First, Why do perception and memory only come to consciousness when the brain is functioning, so that everything happens just as if the brain movements themselves were producing them? And, secondly, What is the part that the body and the mind respectively play in bringing perception and memory to bear upon action?

Perception and memory serve action; this in our view is the sole purpose for which they exist. For the proof of this we appeal to the whole organised world of living beings. Nowhere do we find perception or memory which is irrelevant to the activity a creature

exercises. The perception and memory of a creature may be said to mark the zone within which its action takes place. The answer to our first question is therefore clear. Perception and memory will only serve action if they arise when the action is in progress, it is only then they will be useful. If, moreover, the action in progress is of the kind we call voluntary, if instead of being automatic it calls for deliberation and choice, it is then when the action is in progress that it will be not only useful but necessary. This necessary intervention occurs at the moment when the stimulus reaches the higher centres of the brain, and before the action is carried out. Then it is that perception if it arises will illumine the zone of activity, that memory will interpret the perception, and that together they will outline coming action. So it is that at every actual moment of attention to life, at every moment that mind and body are united, concentrated in the present activity, at every moment that the situation is demanding of the living being deliberation, consciousness as perception and memory is pointing the path of the action. Because, therefore, perception and memory only arise to serve action, action which can only be carried out by the body, and because the centre of that bodily action is the brain which controls the muscles, everything must happen just as if the perception and memory were produced by the brain movement.

The second question is all important. What is the function which mind and body severally and together perform in regard to perception and memory? Assuming as we do that perceptions and memories are facts about the reality outside the centre of action, that

they are not formed when and as they come to consciousness, but that perceptions come from the external world, the physical reality around us, and that memories come from past experience, the life of the mind, and that they come to consciousness when action is in progress, what is the part which our body and our mind play in this bringing to consciousness? It is clear that our perceptions and memories are conditioned by our body, for a blind man does not see, a deaf man does not hear, and a shock may deprive us of memory. Also it is clear that they are conditioned by the mind, for we all know the experience of dulness when we find it difficult to recall the past, and the experience of brightness when we perceive rapidly and recollect with ease. The function which mind and body perform in regard to perceptions and memories is selection. Selection is essential to action. Our body, organised to be an instrument of action, is contrived to exclude from the focus of activity all influences radiating in upon us that do not concern our action, so that those only shall get through which serve our action. By our mind and body there is thus formed a zone of activity, limits are marked out within reality, lines along which our action can move. It is the body which pre-eminently performs this work of selection in regard to perception, the mind in regard to memory. The influences radiated in upon us at every moment of life are infinite, if all were perceived perception would be useless, it could not serve our action. Hence selection; the eye excludes from visual perception all but vibrations of a certain frequency, and is contrived to admit or exclude, that is to select, even these, and they are excluded from every part of the organism but the eye. The whole body is an organism contrived and specialised for selection.

This is illustrated wherever we look throughout the animal world. Each living creature is at every moment of life in an attitude of attention to the group of actions which constitute its living, and the universe for each is the zone of its activity. As organisms grow in complexity from the almost unselective protozoon up to the highest of the vertebrata, we see in the development of special senses the capability of more and more selection, and with it, of more and more concentration on action by the exclusion of what is irrelevant. And the brain, that marvellously complex organ in which it is possible every one of its many million cells and every one of its fibres may have its special function, what is it, and what does it do? The brain is the motor mechanism by means of which life or mind acts. The brain carries out in action what the mind wills. It is the organ by which all the actions of the living creature are determined and controlled. The mind, not the brain, perceives; the mind, not the brain, wills the action. To the brain the call to action is a stimulus received by special end organs, propagated along special nerves, reaching special centres, passed on by different nerves, eventuating in particular bodily actions, or, it may be, inhibited or modified or varied in its course in ways impossible to trace, but it is bodily action, physical movement, so far as we can conceive the activity, from beginning to end. To the mind the call for action is a perception, and the perception is of the external physical world, but selected from an infinite possibility of perception to fit the needs and interests of action, so that every living creature disposes of those perceptions, and those only which concern the action of its life. It is by and through the bodily sense organs that perceptions reach the mind and the part

the body plays in perception is selection. Action, therefore, determines what the mind perceives. Perceptions are incipient actions.

An illustration may make my meaning clear. A man in an aeroplane and a soaring eagle may be looking out on the same universe. The same external physical reality is there for each, the same things to be seen, the same things to be heard, or felt, yet how completely different in each we must imagine the perceptions to be. In what does the difference consist? Is it in the different output of the brain of each? Is it in the function which the brain is performing in each? Surely not. In both the man and the eagle the brain is doing exactly similar work, responding to stimuli received by setting in motion the muscles which perform appropriate actions. The difference is in the mind of each, and that difference is in the selection of perceptions, and in each the selection is determined by the actions which it is fitted by its organisation to perform.

But the outer world in space that exists simultaneously at every moment of life and whence our perceptions come is not the only world whose influences are radiating to the centre of action. There is also an external world in time whence memories come to crowd around perceptions at the focus of conscious activity. It seems that everything which happens in a living experience, all the infinite details of life, as they are acted, as they become over and past, inscribe themselves on a register, preserve themselves in a record, whence they are each and all capable of recall. We have no concept of material continuity, as in the case of external perception, which will support our idea of the preservation of the acted past, and enable us to indicate

the substance of this register or record. It is a purely spiritual reality. Memories are not preserved in the body but in the mind, they seem simply to come to consciousness from the unconscious. We can therefore give no other name than this negative one—the unconscious—to the world in which they exist. We assume this to be a fact for the same reason that we assume the world we perceive to be a fact, for if memories are made when they occur and do not actually come to the present from the past then they are not memories. The same function which the body performs in regard to perception, the mind performs in regard to memory. It selects. Its selection is determined purely by the needs of action. Suppose, as we supposed in the case of perception, that there were no means of selection, but that all the infinite detail of our past experience were always present consciousness, of what use would memory be? The mind by excluding, by shutting out in oblivion everything that does not concern the action in progress, serves the needs of action.

There are two questions which arise at this point and seem to interpose serious difficulty. The first is this. If there be two different orders of reality, a mind and a body, which communicate with the external world by and through the sense organs whatever their function be, selection or what you will, how is it that we cannot have the one without the other? It seems that we cannot, for if the afferent nerves are divided by an injury or lesion not only, as we should expect, does no excitation reach the brain, but also the mind does not perceive. It looks, therefore, as though movement along nerve fibres to the brain were an indispensable condition of perception. If it is not why does percep-

tion depend on an unbroken communication in the nerve fibres? The reply, if our view be correct, is that what is affected by the nerve injury is the motor mechanism which is thereby rendered incapable of responding to the call for action. Action concerns the mind as well as the brain, it is the impossibility of its continuation in action, being cut off from action, that destroys perception. In action body and mind are solidary, and therefore what affects action affects each order of reality.

The second question is one which we have already mentioned in our general consideration of the relation of mind to body, but which will here be pressed against us with particular force. If there be, I suppose an objector to urge, two orders of reality, completely different, which join in a common function, how does the one unite with the other? If you are unable to answer the question why pretend that solidarity in action is anything more than a description which leaves the essential problem unsolved? Now I frankly confess that I have no answer that will satisfy this demand, and, moreover, that I think it probable no answer can be given because the nature of the union may be unique. If, however, the argument be that there can be no union of different orders of reality unless there be interaction between them, and if interaction mean that the one is in some way or at some stage converted into the other, it is tantamount to denying that they are two different orders—they belong to one order. If it be the physical energy that is converted into the psychical activity we have materialism, if it be the psychical that is converted into the physical we have idealism. My argument is not directed against either, what I contend is that living action is the union of two orders of reality which

touch each other in that single point where the action is in being. The one, the mind, is a continuity of duration, it brings the past into the present action, and this action is and only can be carried out by means of the other, the body, which in its materiality is purely a spatial continuity. There may be ways in which time occupancy, mind, and space occupancy, body, may exist independently of one another, but in living action the one without the other is not.

Is not this in effect, it may yet be urged, to postulate thoroughgoing dualism? Is not the mind a soul, immaterial in its substance and therefore distinct from the bodily organism with which it is in union, yet complete and independent in its individuality as well as distinct in its substance? There may be individual souls. It may be that the spiritual substance develops and evolves in individual centres independent of the individual bodies with which they appear in union, but such a conception of the soul has no ground in this doctrine of solidarity. On the contrary, if individuality involves action—and if it does not, what is it?—solidarity is the emphatic assertion of the indissoluble union of the two orders. Individuality must include that union and cannot be independent of it. The reality with which we are at every moment in actual touch, the only reality we know immediately, is living action, and this is an indissoluble union of mind and body, of spirit and matter. We are not conscious of uniting them. We experience them in union.

Let us now sum up this doctrine of the solidarity of mind and body. In mind and body we have the union of two realities which belong to different orders, one is material and therefore spatial, the other is a duration

and therefore spiritual. The mind is not a product of the body as the materialist holds, and the body is not a form, or appearance, or phenomenon of an essentially mental existence as the idealist holds, and the hypothesis that these two realities run parallel to one another, never interacting but continually corresponding, so that knowing one and possessing the key we may know the other, is absurd. Our body is organised for action and for action only, without the body the mind is ineffectual. Our body is organised to select out of infinite influences radiating upon us from the external universe those which illumine the zone of our activity and which interest the action in progress. It is a motor mechanism by which the actions are carried out which the mind prepares. But without memory, perceptions are blind. Memory is the especial function of mind. Without the mind the past has no existence. The mind is the continuity of duration, it unites the past with the present activity. And the function of mind in memory is selection. Hence the union of mind and body is not the uniting of two realities which could exist apart—the body without the mind would have no duration, and the mind without the body would have no efficiency. If there were no bodies there would be no minds, and if there were no mind there could be no body, no carrying over of the past into the present activity, no living universe. Each of us is a living soul in a material body. At every actual moment of present existence our activity is determined by the universe of objects which exist in that moment, one of which objects is our body. But this reality has no duration, at the limit it is a cross-section through the universe and is instantaneous. But we are also a continuity of the past moving into the future, this is our mind which endures. It holds the successive

moments of our acted past in memory. We can give no meaning to mind in terms of materialism except by metaphor, for it is not spatial or extended. These two kinds of reality unite in the ever-present moment of living experience.

CHAPTER V

PERCEPTION AND MEMORY

THERE are two realities which come to consciousness in action, one the present spatial world acting upon us, the other the acted past of our own experience. Both are present realities, and our consciousness of them we name perception and memory. We assume that this acting present and acted past are realities which we are conscious of in perceiving and remembering, and that they are realities infinitely wider than the selected influences which reveal them to us in perception and memory. There is no difficulty in assuming that the world revealed to us in perception is a fact, it is the ordinary assumption of common sense, and probably no one who is not trained in philosophy has ever found it possible to doubt it. Practically we cannot doubt it, whether we are philosophers or not,—we conduct our lives on the firm and unwavering conviction that perception reveals a surrounding reality which in no way depends for its existence upon our act of perceiving. But if this is the case with reality perceived it is very different with reality remembered. Memory seems to be a purely personal and individual act and to depend on nothing that exists in its own right. We know that something must have taken place at each past moment of our lives, and we can imagine

that each event may have left its trace or impression behind it, may thus be in some way preserved, but that memories exist whether we are conscious of them or not, just as things exist whether we perceive them or not, that there is a register on which everything that happens to a living experience is inscribed, that there is an existing past out of which memories come, just as there is an existing present out of which perceptions come—not only does it seem unnatural to believe this, but it appears impossible and even inconceivable. Yet one of the first and seemingly most obvious reflections on experience is that there is no essential difference between perceiving and remembering considered as mental states. We have just as much, and just as little, ground for believing the objects we perceive are existing when we are not perceiving them, as we have for believing the events we remember are existing when we are not remembering them. But because the past no longer exists, it seems impossible that the objects of memory can be existing independently as we suppose the objects of perception may be existing. When we have a memory image, nothing independent of the mind exists to condition it. Why then, it was asked, should perception be different? The presence of an image to our mind in perception can be no guarantee that an independent cause of that perception exists outside the mind. The memory image exists when the reality to which we refer it does not exist; a perception is of precisely similar nature; why then must its existence depend on the existence of the reality to which it refers? This is the problem of external reality, a problem which has occupied a large place in the history of philosophy. But perhaps all along, common sense has been right about perception in insisting that it

reveals a reality wider than and independent of itself, and philosophers have perhaps been wrong about memory and have failed to apprehend the reality independent of itself which it reveals. It may be that the difference between perception and memory does not lie in the fact that the object of one exists and the object of the other does not, but in the nature of the reality each reveals. It may be that while perception is the revelation of matter, memory is the revelation of spirit. Before I attempt to examine this doctrine of perception and memory in detail let me try and present the general scheme of it.

A living creature is a centre of activity, and the body of a living creature is an organisation of motor mechanisms fitted to be the instrument of life and consciousness in performing actions. The body is an instrument of action, this is its whole function; the mind perceives, imagines, thinks and wills. The mind is the source and origin of activity, the body the instrument or means by which it is carried out.

But when I state the facts in this way I seem at once confronted with the problem of external existence. How do I know that there is any reality other than my mind, any world independent of my feelings, thoughts and wishes? I cut this Gordian knot of philosophy when I view the problem from the standpoint of action. The knowledge of an external world is implied in my knowledge of my own body, and the knowledge of my own body is necessarily given to me in action. In action I know my body as one object among other objects; the totality of objects is supposed in the recognition of my body as an object. I cannot have the one without the other. Perception is, therefore, already implied in action, for to know my body as an object acting on other objects,

and acted on by other objects, implies the perceivability of objects. The problem of perception is not, therefore, how can I know what is external to my mind—this knowledge is already implied in my activity. The problem is, seeing that all things are in their nature perceivable, why and on what principle is it that only some things are perceived and the rest excluded ?

What then is a perception ? What is it that my mind receives or has when there comes to consciousness the direct knowledge of something external which I call my perception of an object ? A perception is not something added to reality, nor is it something of the mind projected upon the object, nor is it something of the object projected towards the mind, it is a selection from reality. It is selection which gives to the perception its distinctness and individuality. The means of selection is my body, which is organised to exclude the influences radiated on it from the infinite universe, except only in so far as they concern my actions.

But why are my perceptions also affections ? Why is the perception of something outside my body felt as a sensation within my body ? I cannot perceive other bodies without at the same time perceiving my own body, and something, therefore, of the perception of my own body enters into all my perceptions of other bodies. Also my body acts on itself as well as on other objects. The nervous system has a double function, it is sensori-motor. The affection, therefore, is the subjective aspect of the perception, the image its objective aspect. The one is within, the other is without the body.

What is memory ? What are the recollections that arise and attach themselves to perceptions ? What is it that joining on to a mere sound which is all that comes from without to stimulate the auditory centres of my

brain, joins to it the meaning of the word, and so makes it for me more than the perception of a sound, makes it the recognition of meaning? In perception the things perceived are continuous with my body, part of the reality that is present with my body, but in memory the thing remembered is not present but past. Recollections are different altogether, different in kind from perceptions. They are not perceptions which were present and now are fading away into the past, they come directly out of the past to insert themselves in the present. Memory then relates us to a different reality from that to which perception relates us, to a reality that is not material but spiritual—spiritual not in the sense of being supernatural but in the sense in which life and consciousness are a different reality from the body.

What then is the part which the body, and especially the brain, plays in regard to memory? The body is fixed in an attitude of attention to life. Consciousness is directed forward to the action in progress, on which it is concentrated, but the attitude can be relaxed and so leave room for the past to enter. One of the functions of the higher cortical centres seems to be to inhibit the immediate motor response to the stimulus, and this seems to relax, as it were, a tension and so to open wider and wider planes of memory to present consciousness. Theoretically there is no limit, the past experience is there in its entirety in the unconscious, and could come to consciousness if the relaxation were complete, and if the mind, turned back from its forward looking attitude, could contemplate itself. Pure memory is a recollection coming from its place in the past to fit itself into the present consciousness, consciousness fixed on present action. But there is also

another form in which the past acts in the present. This is the memory that repeats. The body is organised to repeat the past by forming motor habits. Past experience is not only preserved for us as a register of our whole past, it exists for us in habits which automatically repeat, act over again, our past.

Let me first state briefly what in this view are the distinctive doctrines of the nature of perception and memory and consciousness. In the first place it is held that perception and memory are different in kind and not in degree. It has hitherto been supposed, almost universally, that memory must be the faint or faded image or copy of a perception. In the next place it is held that the purpose which perception and memory serve is not knowledge but action. They do not arise in consciousness in order that the mind may know or contemplate reality, but in order to throw light on the action in progress. And further it is held that they do not come into existence when they come to consciousness. Perception and memory exist unperceived and unremembered, shut out from our attention in the unconscious, the bodily and mental attitude excluding or admitting them as the action requires. Lastly, consciousness is held to be the tension which holds together or spans the duration at the centre of activity—the concentration, contraction, or convergence of life on its activity. It is the maintenance of an attitude of attention to life. I propose now to examine these distinctive doctrines.

The doctrine that perception is totally distinct in its nature from memory and not merely in degree means that memory is not a faint or faded perception, and that perception is not a vivid memory. Each is the awareness of a different reality, or of a distinct order of reality.

Perception reveals matter, memory reveals spirit, the duration of living experience. Perception and memory give to our action its character and direction. They are never in experience pure, and to form the notion of what each is we have to imagine it existing in abstraction from the other. A pure perception is the discernment of reality which we should have at the present actual moment of living experience could all memory of the past, and, consequently, all anticipation of the future, be blotted out. It would have no duration, for duration at once brings in memory. To understand the nature, the purpose, and the origin of perception, we must regard it from the point of view of action. We perceive in order that we may act, not in order that we may know. When we observe the universe from the standpoint of common sense experience and scientific explanation, it appears to us as an aggregate, a collection of what we usually call things or objects, one of which is our own body. In speaking of things or objects we often, indeed generally, imply a great deal more than simply what is present to the mind when we perceive. For this reason many philosophers try to distinguish the reality actually present to the mind by a different term. Bergson uses the word *image*, others speak of *sense data*. It is difficult, however, as I shall notice further on, to avoid the misapprehension that the particular term indicates another and different reality, and I will therefore use the common term *object*, it being understood that nothing whatever is implied in that term to indicate independent material substance or anything else which does not appear to us in the observation of the universe that I am now supposing. These objects appear to me as centres of activity, centres from which influences

and movements are emanating. They appear to act and react on one another according to constant laws which we call laws of nature. When I observe these objects without regard to my privileged position among them they seem to have no centre, but to be determined by their mutual relations, so that nothing really new is taking place, the change they seem to undergo is only an alteration of their mutual relations. But I observe that there are some objects which have the capacity of effecting these changes—of performing actions, and that I am myself one of these objects. My body, which is a privileged object to me, because I know it not only as I know the other objects surrounding it, but by affections within it, seems to have this power of acting, of effecting changes in the other things, and I observe that this power is characteristic of other objects, of all those centres which are living. Now when I consider these living bodies I see that action is the end towards which all their organisation is directed. I see that there is a gradual change, marked by an increasing complexity of organisation, as I rise in the scale from simple bodies capable of restricted movements to higher bodies, and each change seems to have in view an increasing range of activity, an increasing power of effecting changes in other things. The purpose therefore of all living organisations seems to be the capacity for action, and the securing of an ever-widening sphere of activity. But in order that actions may originate from these living objects the movements or influences of other objects must be received and utilised. How is this effected?

I study those objects which like my own body are organised to receive these influences and utilise them in actions. The simple type of this organisation is

a chain of nervous elements one end of which receives impressions, the other executes movements. In ourselves the nervous system has become an organ of enormous complexity consisting in a central mass, the brain and spinal cord, in which the fibres, conveying the influences from outside the body, end and initiate the movements to be executed. Nothing appears to enter this system except as a movement, and every movement passes through it by communicating movement to the other elements, but while some of the impressions received are immediately converted into actions, others seem to be delayed or inhibited, or suspended. Those which pass from the surface of my body to the spinal cord meet an immediate response in action, but those which pass to the brain seem to hesitate, and to remain for a longer or shorter time undetermined as to the direction which the responsive action will assume. It is when the impressions reach the brain that I have perceptions, that is, I become aware of, I discern, the things from which the impressions which have set my nerves vibrating and are about to call forth the response of my muscles, are emanating. What are these perceptions? Are they particular existences which come into being when the movements reach the brain? Are they generated by the movements, or manufactured in the brain in response to the movements? No. Science teaches us that the sole function of the brain, with all its complexity, is to transmit movement. Nothing new comes into existence with a perception. Perceptions then are part of the reality of things. This general reality consists in the influences which are being radiated from all the surrounding things, from all the active centres. When from one thing the influences radiated to another thing are reflected

back by that thing, then if there is consciousness at the reflecting centre there is discernment, and the discernment is perceiving and the reflected image is the perception. Perceptions then are presupposed in the general scheme of reality, the only thing that is new is their coming to consciousness. Consequently, the problem of perception is not, How can the brain or the mind produce a particular kind of existence which represents truly a reality that is different to itself and that exists outside itself? The perception does not represent, but is the reality. The problem is—why when all things are in their nature perceivable do some only and not all perceptions come to consciousness, and why do these only come to consciousness at the moment when the afferent nerves transmit their movement to the brain? Or shortly, why does everything happen as if perceptions were manufactured in the brain?

The important doctrine that perception is part of reality, that it already exists whether it comes to consciousness or not, that it is not an independent and particular kind of inner or mental existence representative of external reality, is most ably expounded by Bergson in *Matter and Memory*. It appears in complete agreement with a doctrine of realism that has lately been promulgated and widely discussed and is now generally known as the New Realism. And this is one of the reasons why Bergson's theory of perception has seemed so difficult to understand. It appears to accept fully the premisses of New Realism, that is to agree entirely with it in declaring for the unmediated nature of the knowledge of reality that we obtain in external perception, and yet to draw a totally different conclusion respecting the nature of external reality. The difference is emphasised in Bergson's use of

the word image to describe the external reality perceived. I have already remarked on this and shall return to it, but I will first try to explain what it is in the theory of New Realism which is in agreement with our doctrine.

New Realism is a way of thinking fundamentally different from any which has until recently been prevalent in philosophy and psychology and biology. It is a view no one whose opinion counts has held since the birth of modern philosophy with Descartes in the seventeenth century until the present generation, and which no one until this twentieth century among the leaders of philosophy has thought it possible to hold. All who are acquainted with the history of philosophy know that the problem of the nature of our perception of external things has occupied the attention of philosophers both in ancient and modern times, and that in the philosophical movement of the eighteenth century in England it became almost the exclusive question. It divided philosophers into two camps—realists and idealists—those who held that perceptions are the knowledge of an external reality independent of mind or consciousness, and those who held that there was no other knowledge but perceptions, which were mental existences, and that they were the whole of reality. The victory, so far as there can be said to have been a victory, in a controversy which has never to the present day died down, must be said to have fallen to the idealists if we have regard to the character of the philosophical development of the nineteenth century, which was overwhelmingly idealistic, following the great change of direction inaugurated by the work of Kant. Kant himself vehemently denied the charge that he was an idealist, but in the movement that

followed his great work, the realism of his philosophy tended to disappear and the features that made for idealism to become more and more pronounced.

Within the last few years, however, a new realist theory of the nature of perception has been proposed which is quite different from the psychological realism of the eighteenth century and from the scientific or physiological realism of the nineteenth century.

The word *realism* has changed its meaning more often, perhaps, than any term of similar scope and importance in philosophy. Thus it is used to denote the theory of Plato that Ideas, the objects of thought we name universals, are real and eternal in contrast to particular sense objects which are derived from them, a temporal shadow or appearance of them. Plato's theory is now generally associated with the most absolute form of idealism. In the scholastic philosophy, the term realism was also used to denote the Platonic doctrine and was opposed to the doctrine of nominalism that universals are common names. But from the eighteenth century onwards, and particularly since the idealist doctrine of Berkeley—*esse is percipi*—it has been used to denote the theory that the things or objects of the physical world exist quite independently of the fact whether we know them or not, and are not in any way altered or qualified by, or relative to, our perception of them. And the doctrine took this form. We have certain perceptions in our mind which represent real things outside the mind, these real things being the cause of the perceptions by means of which they are known. To that contention the idealist made the obvious and unanswerable reply, that the reality we perceive cannot be in its very nature unperceivable, and therefore the perceptions must be themselves the

reality, and to be can only mean to be perceived. But on one point both realists and idealists were agreed, that whether perceptions are the only reality, or whether they are representative of an independent external reality, they are themselves purely mental existences dependent on the mind that possesses them, and existing only in and for the mind.

The new realism is an entirely different doctrine, and indeed resembles the idealism rather than the realism of the eighteenth century.¹ The description of it I am now giving is from the writings of Mr. S. Alexander, who propounded it in three striking and original studies delivered as Presidential Addresses to the Aristotelian Society.² The theory is that perceptions are non-mental realities, that the only mental reality is an act, the act of perceiving, and the object of that perceiving, the perception, is external to the mind and independent of the mind. The mental part of knowledge is always, according to the theory, an act, and the form of that act denotes the attitude or direction of that which knows towards what it knows. Perception is the togetherness or compresence of the object perceived with the mind as perceiving, conception is the compresence of the object conceived with the mind in the act of conceiving, idea in the act of thinking, memory image in the act of remembering, and so on. And this doctrine leads to and implies the theory that the knowing relation is one of absolute simplicity, the simplest of all relations, togetherness. When two things are together, and one of them is a mind acting in a way appropriate to the other, it is aware of that other. The state of the mind itself is described as enjoyment, while the object is said to be

¹ Locke and Reid may be said, each in his way, to have approached it.

² *Proceedings of the Aristotelian Society*, vols. ix. x. and xi.

contemplated. In the widest sense, anything whatever may be said by an extension of the word "know" to know any other with which it is together. This and nothing more than this is knowledge. Why I say this new realism resembles the old idealism rather than the old realism is because for it perceptions are real, but it differs from both the old realism and the old idealism in saying that the perceptions are outside of and not in the mind.

It is evident that this alters the whole standpoint from which the question must now be discussed. Hitherto there has been common agreement that what anyone possessed originally as knowledge were his own perceptions which were peculiarly his own, existing altogether as a state of his consciousness, and ceasing to exist with the cessation of his consciousness. And the problem was how by inference, or by any logical process known to us or imaginable by us, we could pass from that which was wholly and altogether a part of ourselves to anything that was independent of us. The impossibility of this seemed so self-evident, that when Hume in the eighteenth century propounded the philosophical doubt concerning external reality, and suggested the solution that our belief in such reality could not be founded on knowledge, but must rest on habit or custom, there seemed no outlet whatever for metaphysical science. Behind all the idealist attempts to find a way of escape there was the spectre of what is called solipsism or subjective idealism. If anyone chose to say he believed that all reality was his present state of consciousness, and that there was no other existence in the universe whatever, we might call him a madman, but we could find no fault or flaw in the logic of his argument.

But the new theory changes all this. We start, not

from the presence of an all-inclusive subjective state, but from an aggregate, a plurality of things which are at the same time in the relation of togetherness, co-presence. Suppose any two things together (the table resting on the floor is Mr. Alexander's example), the table knows or receives the revelation of the floor, and the floor of the table. Knowing by the mind is a special case of this general situation. Take the case of the mind's perceiving the floor, the floor perceived is the mind's percept. All that the mind does is to exercise, owing to the stimulation of the floor, its power of perceiving in reference to the floor, it does not create, or have created within it, some modification of itself called a perception, by means of which it is able to infer the existence of the floor. The important thing is, then, that the relation we call knowledge supposes two things, and the discernment of one by the other and knowledge does not suppose one thing, different from both the things in which in some mysterious way the two things are brought together, and from which the independent existence of the two things may be inferred or denied. In psychology it is the denial that there is any third sort of existence of a purely mental character called a presentation, from which existence is inferred, and on which the knowledge of it depends.

So far as external perception is concerned, Bergson's theory is, as I shall try to show, completely in agreement with this new realism. Perception of an external object is awareness of the presence to the mind of that external object. But then Bergson says that what we perceive are images, and this seems to scandalise the new realist, who would draw the conclusion that what we perceive are things, and the perception of them proof that they possess in themselves and absolutely what we

may call their thinghood. We are brought, therefore, to the question,—What is it that we perceive ?

There is a practical difficulty that meets us when we endeavour to understand the nature of perception due to the fact that in experience perception is never pure, never free from association with memory. There is no consciousness without duration, and duration is the continuity of the past in the present. Consequently into the consciousness of perception memory must enter, but it is no part of the perception. Therefore to bring before the mind pure perception, we are forced to imagine it as it would be if we could by an instantaneous cut across the stream of consciousness view it free from any admixture of memory. Pure perception is the view of reality we should have, if we could become aware of all that exists simultaneously around us at the present conscious moment and of nothing else whatever. Such a pure perception would be a direct revelation of external reality.

It is impossible to give any meaning to external perception if we begin by demanding some proof that there is anything external to be perceived. If I suppose my consciousness of reality to begin with an experience which is altogether a state of my consciousness, and then try to find a reason why I infer from this purely subjective experience the objective existence of something external to me, which I then shall say I know, I shall find that I am in a circle from which escape is impossible. If instead of this, I approach the problem from the standpoint of common sense and scientific observation, I begin with the presence of objects of which I am conscious and of which my body is one. The word object, however, has come to imply something much

more than anyone expressing this common-sense view means when he uses it. Bergson has, therefore, chosen to use the word image, and it seems to me that this word as he uses it in *Matter and Memory* expresses the meaning better than any other word, although it has the disadvantage that to employ it is to employ a word no ordinary man uninformed in philosophy uses or knows the meaning of. To call the things we perceive "images" seems to common sense to rob the world of all its reality. Why, then, is such a word essential to express the true common-sense standpoint, and why will not the usual word "thing" or "object" serve? This very important reason—there is not one thing in the mind and another and different thing outside the mind. The perception, therefore, is a physical fact and not a mental something from which we may infer a physical fact. The things and objects we perceive outside us in the universe are images, and that is what the ordinary man means whether he knows it or not. Let me illustrate what I mean. I open my eyes and look round the room, and see walls, floor, ceiling, books, pictures, etc. These are images reflected into the image which is my body. I close my eyes—I no longer perceive the images, but the images are there, they have undergone no change with my action. No, says some one, surely not, the images go when the consciousness of them ceases, it is the things that remain, and at once he finds that his notion of things separates them entirely from the images. Hence follow the philosophical attempts at reconciliation. The realist or materialist declares that things continue to exist when my perceptions of them are gone because they have a substance which I cannot perceive, but which is the real cause of my perceiving them. "No,"

says the idealist, "this is absurd. There can be no reality of a perception other than its being perceived. When you do not perceive it some other mind, either a particular consciousness like your own, or a universal consciousness which we may call God, must be there to keep it in existence." Both these views lie subtly concealed in popular language, but they are neither of them our common-sense meaning. In the common-sense view nothing that is real goes out of existence when it goes out of our consciousness, and therefore if it is an image for our consciousness it is an image when there is no consciousness. There are two grave causes of trouble, however, in the use of the word. One is that it seems essentially to imply something visual and only visual. And the other is that it implies that reality exists as a prototype and that the image is an emanation. Neither of these meanings is intended. There may be more behind any image than appears, but it can only be conceived as image, and the fact that it is visual is due to the nature of language which is a co-ordination of sounds with sights. Let us see, on the other hand, what we gain by the word. We secure the distinct recognition of the fact pointed out by the philosopher Berkeley, and a commonplace to the philosophical student, but not always apparent to the man of science, that all physical reality can only be presented to the mind in the form of sense perception. Test it with any of the ultimate conceptions of science. Science tells us that coloured light is rapid vibrations of wave-movements infinitely below the possibility of sense apprehension. What is this but saying that were certain conditions fulfilled the sense experience of coloured light would be the sense experience of beating waves? There is no escape from this position. All physical reality which is

not directly perceived is imagined, and what is imagined is an image. That is the reason for preferring to use the word image. But it is unlikely that philosophers will agree to use it, and therefore we must be content with the ordinary term object or thing. Let us recognise, however, that reality can only be perceivable in so far as its nature is pictorial, and that by object or thing we do not mean something different from the pictorial image we perceive. The image is not something detached from the thing, something that resembles or represents it, or is a truthful copy of it, but the object or thing itself.

The first essential then, if we would understand the nature of external perception, is that we should look at the fact of external perception from the standpoint of our body as an object among other objects, of the universe as an aggregate of objects. Then we observe that those objects act and react upon one another in a determined way according to what we describe as laws of nature, such that it seems we should be able, if our knowledge of their present state were complete, to calculate accurately their past and their future. Among these objects there are some that seem to be privileged, and of these we have direct experience in our body, for it is one of the privileged objects. They are centres of indetermination. They have the power of free movement in space, and they seem to be able to respond to influences from without by movements initiated within, and directed from within. How is this effected? In objects capable of this free movement there is a mechanism or organisation by which the actions of other objects are received and transmitted as bodily affections and passed out as actions. And it seems, as we have already noticed in our general scheme,

that it is just at the mid point of their course when movements are received in the brain as affections, and before they are transmitted as movements which pass out as actions, that the mind perceives. The function therefore that perception performs is to throw light on the zone of activity, to give the motor mechanism, the body, the power of directing, diverting, inhibiting, controlling its actions. Whatever, then, perception is it does not exist for its own sake but to illumine action. It is the necessities of action that enable us to understand the problems of external perception.

The perception of a reality does not add something to the reality which was not there before, on the contrary it excludes something from the full reality. The body is so organised as to have as one of its primary functions the selection of the influences, radiated upon us from the outer world, which the mind can perceive. The perception is something selected from the continuity of the real. If, following our scheme, we picture the whole of reality as the radiation of activity from centres and perception as the reflection back by one centre of the influences reaching it from others, then we find our body a means of selecting these influences. The principle of this selection is that those influences which do not reflect the eventual actions of the body, which do not call for or concern the activity of the body, pass on, while those which concern its activity are reflected and come to consciousness. This selection is accomplished by our sense organs. Let me illustrate this by one of the conceptions of physical science. When we talk of the selection of perceptions by our sense organs, we seem invited to picture the physical universe as consisting of material objects which cast off images, shadowy duplicates of themselves to become

perceptions. Of course if the world is supposed to consist of solid material objects, and the sense organs to be some of these solid material objects which have the power of accommodating selected portions of the others, then some such crude notion is forced upon us. This is far removed from, and altogether inconsistent with, the idea I am trying to express. It is very different if we consider the universe as physical science now conceives it, an infinite system of radiating energy, all radiation being wave-movement and all difference in the universe being a difference of wave-length. To certain ranges of wave-lengths alone can we be susceptible because our organs are fitted to react to these. A certain group are perceived as light, a certain group as heat, a certain group as sound, a certain group are not directly perceived at all but revealed to us by the science of photography, a certain group of very narrow length are the X-rays, and a certain group of very wide length are used by us in wireless telegraphy. But all of these are continuous with one another by infinite gradations, and extend beyond us in an infinite series of longer and shorter waves than any we perceive. Take then the eye which responds to the waves we call the visible spectrum, the light we see is a selection, but this does not mean that it is something thrown off by the waves, something they part with, it is the reality itself coming to consciousness but selected.

But the selection which our sense organs perform is unconscious. Many, indeed far the greater number, of the stimuli which come to us through the senses transmit their movement and issue in actions which are performed without our ever becoming conscious of perceptions. All those stimuli that are transmitted to

the spinal cord, and the greater number of those which pass through the brain, issue in immediate action. But some of those that reach the brain are arrested before they pass into action, there is a hesitation, an indetermination, a choice of actions, and it is where this happens that perception arises. Consciousness serves this choice of actions.

We may see then why it seems as if perceptions were manufactured in the brain. The brain only transmits the movement, but it is when the movement is being transmitted through the brain and then only that consciousness functions. We may see also why it is that we conceive the universe as a collection or aggregate of objects which act and react on one another according to the laws of nature which we learn from science, and yet when we perceive these objects they all seem to be centred round our body and to change with every change of our body. It is because the perceptions are selected and only those come to consciousness which interest the action in progress.

And now we have to ask what is it that discerns, that is conscious, that perceives? It is the mind. The answer is possible because we have already distinguished the mind from the body by saying that it is the continuity of duration. The substance or rather the content of the mind is memory. When perceptions are perceived they join memories.

No other answer is possible. Let us see why. Why, it may be asked, cannot the brain or even the movement in the brain become consciousness or at least give rise to the phenomenon of consciousness? Because the brain and the movements in the brain are themselves perceptions, objects perceived; they cannot be also the act of perceiving. There is no escape from

this, they are objects external to me. My body and all that goes on in it is external to me in perception, a part of the aggregate of objects which make up the universe. How can a part of this whole, itself perceived, be the equivalent of the whole of the perceptions, itself included? But there is a stronger reason still and more fundamental. In describing perception we said that a pure perception exists in theory only, it is what the universe would appear to us if we could present it in an instant without duration, if we could have the vision of matter at such a moment free from memory. But nothing exists *in fact* without duration. Perception exists therefore only at that point where action is in progress, where the past is becoming the future, the future is becoming the past. Around this mathematical point pure perception exists as the consciousness of the actions of external objects, conflicting with the activity, or being utilised by the activity, of a mind which is a continuity of the past in a living present activity.

There is another question that requires an answer before our account of perception is complete. Why are perceptions which are formed outside the body experienced as affections of the body? What are sensations? What are pleasure and pain? We cannot of course deduce the nature of pleasure and pain, say why pleasure is pleasure, pain is pain. These are ultimate data of experience. But if our principle is true that everything in consciousness exists for its utility in action, clearly pleasure and pain must be useful otherwise they would not exist. Our body is an object perceived by us just as other objects are perceived by us by means of it. It is an object of perception as

well as an instrument of perception. Therefore with every object that we perceive we combine something of the perception of this privileged object itself. Every perception is therefore also an affection. According to the nearness and intensity of the relation between the object perceived as outside and our own body is the proportion of perception of our own body which will enter into the perception of the other object. A distant object in space indicates a possible or eventual action, a near object an immediate, imminent or actual action. If it is a menace or injury to our body it will give rise to an immediate perception of our body and will call forth present action. If it is an effort to redress an injury or resist an injury the affection will be experienced as pain. The pain will be more acute according as the part affected is called into sudden activity without being able to wait for the responsive action of the whole. It is then this fact that outer perception must carry with it something of the perception of the instrument itself, which makes the perception at the same time the reception of an image and an affection.

But the problem of pain is a very difficult one from whatever point of view we approach it. The difficulty of any natural explanation on the ground of utility is the commonly recognised fact that pain is not proportionate to the injury that causes it nor to the danger to the body nor to the menace to its life. But one fact at least stands out when we consider the general nature of pleasure and pain. Pleasure characterises a whole state of the organism, its undivided activity, pain seems to mark discrepancy, a partiality, as though the organism were divided against itself. The soldier covered with wounds feels no pain in the excitement

of the battle so long as his whole activity continues to be engrossed in the conflict. On the other hand the gratification of an appetite is deprived of its accompanying pleasure if the rest of the organism is in pain or even in discomfort. Pain on the other hand is always localised more or less completely. It therefore seems that pain is the mark of the condition of a part of the body functioning badly through injury, and reacting directly in itself when the reaction of the whole, which its normal function would call forth, is impaired or impossible. Without pretending therefore that we can explain the particular utility in action of every painful experience, it is possible to indicate generally the part that pain plays in the activity of life.

The relation of consciousness to memory is precisely similar to the relation of consciousness to perception. Just as any of the perceptions surrounding us may come to clear consciousness, or if we prefer to state it the other way, just as we may become conscious of any perception when action demands it, and the perception does not then spring into being but comes to consciousness, so also any of the memories that lie behind us in the past may come to consciousness. They do not thereby come into being, they come from the unconscious to consciousness. In the case of perception we find no difficulty because we have the concept of matter which enables us to think of the uninterrupted existence of what we intermittently perceive, but in the case of memory this concept will not serve us, we can only say that it exists in the unconscious.

This existence in the unconscious is a fundamental conception. It gives the distinctive meaning to the doctrine that reality is ultimately life. It frees us

from the necessity, so fatal to idealist systems, of identifying experience with consciousness—a fruitless effort, the failure of which is only too evident in the many philosophical and psychological theories of origins. We need no longer see in the first actions of newly-born creatures, in the birth of individual experience, the mystery of a new creation. Perceptions and memories are not a creation of new existence when an individual experience begins. When a child is born, when a young bird breaks out of its egg-shell, when a nestling swallow takes its first flight, the action is new, the perception and memory is the reality that serves the action becoming conscious.

What then is the relation of memories to past perceptions? Some memories clearly are recollections of perceptions; have they changed their nature? The perceptions of the mind are, if our theory is right, formed outside the mind in the objects, whatever the full nature of those objects is. When perceptions come to consciousness do they become memories? The reply to this question will, I hope, be clearer when we have considered the doctrine that things are actions. The answer is that when we view perception and memory from the standpoint of action they are inseparably united in the life activity. They exist at the focus of attention and are there distinguishable by analysis but inseparable in fact. There is no such thing as a pure perception. It exists in theory only. It is but an element in that living action which, as it makes itself, becomes memory and adds continuously to the richness of the individual experience. There is therefore no priority of perception over memory.

We have now to consider what memory is and the

part it plays in conscious activity. Just as we picture pure perception as a cut across the stream of becoming in which we imagine the whole of the active influence of the universe to be simultaneously present, so in our picture of pure memory we imagine a line stretching out behind us in the past, to which the present moment is continually adding its image, as it ceases to act and becomes the past, and in this past all the events that have made up our experience lie in their order of succession. It seems as though an independent memory received, engraven upon it, each event in our experience as it happened, and preserved it in its order of time, and that our body at the present moment was the last of these images to be engraved upon it. The act of perceiving seems the discerning of what surrounds us at the instant in space, the act of remembering seems the discerning of that which lies behind us receding in time. So we may say that pure perception exists wholly in the present, pure memory wholly in the past.

But in saying that perception is always present, memory always past, we must take note of an important distinction. The body is a conductor of movement placed between the objects which act upon it and the objects which it influences. It receives movements and transmits them to motor mechanisms, the resulting action being in some cases, where it is reflex, determined, in some cases, where it is voluntary, chosen. Conscious perception is the discernment of the present image at the moment when its influence interests action. Now this seems to imply that the image perceived exists simultaneously with its influence passing into action, and it can easily be shown that this is not a fact. We never perceive what is but only what was. The sun, for example, which we perceive is always the sun

of eight minutes ago, that being the time required for the light propagation. And in the case of distant stars the interval is hundreds or even thousands of years. Movement involves time as an essential element, and that is why we have been careful to add that pure perception exists in theory only. But this lateness or overness of the perception means something quite different from the past of memory. The pure perception is the presence in consciousness of that which is acting or being done. On the other hand, the presence in consciousness of a memory, retained or revived, is the presence of that which is past in the sense that its action is wholly accomplished.

The argument that perceptions are not manufactured by the brain applies with equal or perhaps greater force to memory-images. We can imagine no process by which movements transmitted to the brain could be developed, as it were, like the sensitive plate of a photographer, into a representation of the external world, neither can we imagine any process by which the brain could make a past perception into a present memory-image. But there is a difficulty about memory which we cannot solve in the same way in which we solved the difficulty about perceptions, because if perceptions are not in the brain they can be in the external world. But if memory-images are not in the brain there seems no place in the universe in which they can be. Many people, therefore, hold that the brain is a storehouse of memories, that these memories lie dormant in the brain cells until some stimulus calls them forth, or else that they are the old tracks or paths of brain movements connected with old perceptions which glow again as a new movement crosses them. A great part of Bergson's book on *Matter and Memory* is directed to the demonstration of

the impossibility and contradictoriness of this notion, and to proving its entire disagreement with experimental facts ; for fortunately we are not dependent on logical and theoretical arguments to dispose of this idea, but can positively disprove it by facts. Consider what is involved in the recognition of words. A word is a sound which, when its stimulus reaches the brain, evokes an auditory image. In some way the sound joins the memory and acquires from the union a meaning ; instead of a sound it becomes a word. But no word is ever pronounced twice exactly alike. If then it is recorded as a memory in an allotted cell, there must be a practically infinite number of such records corresponding to every possible variation of pitch and tone. These must be each in its cell or each individually distinct in the cell that it shares. And in either case we must suppose a mechanism of some unimaginable nature, which groups together, on some unimaginable principle, the sounds which evoke the same recognition of meaning. Nevertheless, it used to be a generally held, and is still a widely held, opinion that there are special cells in the brain in which memory records are lodged, and that loss of memory is the consequence of the injury or destruction of these cells. Now in the case of word memory, anatomists have been able to locate the actual convolution in the cortex which performs the function. A lesion of this convolution is invariably accompanied by some form of the malady known as aphasia. By what seems to me a wonderful penetration, Bergson, very early in his philosophical career, discerned that here, if anywhere, the secret of memory would be discovered. Accordingly, for many years he closely and continuously followed in all their details the cases that were described in medical reports of hospital practice and all the patho-

logical researches bearing on the subject. It was possible to do this, because it so happened that special interest centred round the subject of aphasia in the physiological and pathological laboratories at that time. The second chapter of *Matter and Memory* summarises the argument based on the results of this long and continuous research. It illustrates in a very concrete way Bergson's maxim that metaphysics must preserve the power of continually remodelling itself on experiment and observation, and that the philosopher cannot detach himself from experimental science. Auditory aphasia is a malady in which the patient suffers from an inability to attach meaning to words, he is able to hear but not to recognise the meaning of even quite familiar words, otherwise his physical powers appear to remain intact. This condition is, as I have said, always accompanied by the lesion of a particular convolution, and it seemed to be an obvious deduction that in this convolution were the special memory cells, that their loss involved the loss of memory, and that the extent of the injury would correspond to the amount of the memory which was blotted out. Bergson showed that the facts pointed to an entirely opposite conclusion, that, in fact, the memory was still there and unimpaired, but that what was thrown out of gear by the injury was the mechanism by which the memory inserted itself in action. It was a motor function, not a psychological reality, which was affected. It is enough to say that this view, at first hardly taken seriously, has gained continual confirmation and is now very widely accepted.

Let us suppose it proved then that memory does not spring out of the cells of the brain substance or from the tracks of brain movements. What is memory and in what way does it use the body which, according

to our theory, is an instrument of action only? When we speak of our memory we may mean either of two quite distinct things. We may mean the recollection of what has happened to us in all the unique circumstances of its occurrence, or we may mean the present power we have of repeating some lesson that we have learnt. We may mean, for instance, that we remember having heard a piece of music played, or we may mean that we can ourselves play it. In each case we use the same expression and say we remember it. Suppose we are studying a music lesson in order to learn it by heart. We repeat it a number of times, and at every repetition we make progress, until at last we are able to say it is imprinted on our memory, we know it by heart. When we look back and consider how our lesson was learnt, we picture each separate repetition with its particularity as a successive phase of a process. Each has its own individuality, each was attended by particular circumstances, each, in fact, was a definite event in our history. We then call these recollections images and say they are imprinted on our memory. But we mean a quite different thing when we say that our lesson is imprinted on our memory, and when we say that our recollections of learning our lesson are imprinted on our memory. The one, the knowing by heart, has all the marks of a habit acquired. We have only to set a mechanism in motion and the rest will follow automatically. The other, the remembering the repetitions, has no marks of a habit whatever. There are two ways, then, in which the past survives,—firstly as motor mechanisms which make use of it, and secondly as personal memory-images which picture all past events with their outline, their colour, and their place in time, in the order of their occurrence.

Let us now see, by taking a definite instance, how these two modes of memory function. There is no better illustration we can choose than that of which we have already made use, the auditory recognition of words. In every such recognition we may distinguish two things. First, there is a process that is automatic which tends to prolong the sensation into action. This takes the form usually of muscular activity in the throat and vocal cords. When we hear a word we do not necessarily pronounce it, but there is an automatic movement to do so. In the second place, there is an active projection of memory-images. Recollections flow over the word, so to speak, from the past. Suppose I hear two persons conversing in a language unknown to me. So far as pure perception is concerned we are all three alike. The same sound or noise may be striking my sensitive surface as that which is striking the sensitive surfaces of those conversing. But the effect is entirely different. The same noise which to me is only sound is to them meaning. What is the difference? It is wholly in memory. But in what way does memory modify the materiality of the perception? What must I do in order that the sound, mere noise, shall become for me a language expressing intelligible ideas? It is not enough to modify the sound by making it louder or softer or slower, nor is it enough to join it to memory. In order to accustom the ear to the elements of the language, I must co-ordinate the motor tendencies of the muscles of the voice to the impressions of the ear. I must perfect the motor accompaniment. It is common experience that this is what we do. We try to pronounce the word. This accompanying movement is a process of analysis. It breaks up the continuity of perception. It decomposes

and recomposes the continuity of the sound. But there is another thing we do that is equally essential. We pass from movements to memories. As we hear the spoken words we place ourselves straight away in the midst of the corresponding ideas. We project memories towards the words. Thus meaning comes to the word or phrase by the emergence into consciousness of memories, at the same time that the sensory process is prolonging itself in movement.

CHAPTER VI

THE WORLD OF ACTIONS

PERCEIVING and remembering are mental acts. What is it that they accomplish? How and why does the reality known by perception and memory take the form of things, and what are things? The objects we perceive have distinct outlines, and these outlines give to them their individuality, yet without recourse to philosophy it is already a commonplace in science and in art that there are no outlines in nature. But if there are no independent outlines which can be abstracted from objects, it is nevertheless true that there are limits or boundaries, division marks which indicate sufficiently clearly, and even absolutely, where the activity of one thing ends and that of another begins. Are these division lines part of the reality? Is the universe marked out absolutely along the divisions that outline the individual objects of our perception? Or, are the outlines due to the selection which our mind and body exercise on the reality? Our previous argument has prepared us for this latter alternative, but if we accept it a new problem arises. What are these division lines which our selection marks out? What guides and determines us in the selecting process? The answer is the doctrine that there are no things but only actions, that things are our eventual actions. "The

distinct outlines which we see in an object, and which give it its individuality, are only the design of a certain kind of influence that we might exert on a certain point of space: it is the plan of our eventual actions that is sent back to our eyes, as though by a mirror, when we see the surfaces and edges of things." (*Creative Evolution*, p. 12.)

This doctrine follows from the two principles to which we have already often had to appeal but which we must now try and set before ourselves in their full meaning. The first is that reality is an original movement, not the purely relative movement which we call movement of translation, but the absolute movement which we call change, and which characterises life. The second is that consciousness is a tension—the grasping, contracting or holding together of what is, in its absolute nature, flowing. It is this nature of consciousness that creates states or things, and things are contractions of reality effected by memory. It is the action, on which consciousness is bent, and to serve which it has arisen, that determines the form these contractions assume.

We have seen that the body is an instrument of action. Whatever its own nature is, there is a reality which is much wider, which overflows it, so to speak, on every side, a reality which we call mind, or soul, or spirit. The body is material; in whatever way we conceive the laws of action and reaction to govern the matter of the universe they apply absolutely to that object we call our body. Our body is a mechanism which receives and transmits movement, and the central contrivance of that mechanism is the brain. We have seen also that everything happens as though when movements were transmitted through the brain they gave rise to, or set at liberty, or caused to be manufactured, perceptions and

memories, and these seemed to have as their prime purpose to make us aware, to give us conscious knowledge of ourselves and of things. The brain seems to be, and is generally thought to be, an organ which produces conscious feeling and perception, and stores these like the records of a phonograph to be revived later as memories. Our theory denies this and declares that it is contrary to reason, and absurd. The brain is not the organ of thinking, nor the organ of feeling, nor the organ of consciousness, but the organ which enables consciousness, feeling and thought to become operative, to become capable of efficacious action, to insert themselves in the reality of life. The brain is the organ of attention to life, and attention is not a mental but a bodily attitude. The life of the mind, or soul, or spirit is its concentration in present action; the material motor mechanism by which action is accomplished is the body; and the contrivance by which the mind inserts itself in the action is the brain.

In this motor mechanism then the whole of our reality in time and in space comes into focus, is concentrated in living action, and the relation of the body to the mind is therefore, in Bergson's metaphor, the relation of the point to the knife. It is the insertion of our being into the reality, it is our contact with the becoming—the perpetual becoming—that is the manifestation of universal life. Therefore it is that without the body we are nothing, for we can do nothing. And as we have already said, that which can do nothing in a world of action is nothing. The body is merely a limit, like the knife-point, but it is there at the limit that our individual concentration of effort comes into relation with the outer activity which opposes it or at least confronts it.

If this is a true account, if it fits in with what we may easily recognise as the facts of life, then the whole difficulty of our dual nature, mind and body, is gone. All the absurd and fantastic ideas of realism and idealism — theories of parallelism, epiphenomenalism, mind-stuff and the like — may be swept aside. We have no need to deny the reality of mind or of body, of matter or of spirit, for we have harmonised the dualism in a conception of solidarity. We have been able to do this because we have taken the standpoint of action, and from the standpoint of action we see that the body does not exist in order that mind may become conscious, and mind does not exist in order that we may have knowledge, but both subserve the purpose of a life concentrated into an individual activity.

Let us fix our attention for a moment on what is expressed in this metaphor of the knife-point. It represents the actual present moment of activity, and the actual present object of conscious attention. Consciousness exists at that point only, and it gathers round it, as round a centre, just that portion of the immediate past and the immediate future which gives duration to what we call the present moment. What is the consciousness that exists at this moment of time and at this point of space, where the whole being of a living creature is drawn together, concentrated, shrunk into an attitude of attention to life? Does a new reality, an entity that previously was non-existent, come into existence with consciousness? We say, No. Is consciousness the whole of reality, that which is within it being alone actual, and that which we conceive as without it being real only in the sense of potentiality, as, for example, in John Stuart Mills' theory that things are permanent possibilities of

sensation? Again we answer, No. We admit indeed that to conceive anything is to conceive the circumstances in which it would be a conscious experience, and in that sense all reality is a possibility of conscious experience, but we deny that anything whatever, perceived or remembered, coming from unconsciousness to consciousness, comes into existence, or even changes its nature. Consciousness is the light that is shed on action; its sole and only function is to illumine action; for this purpose it appears to have arisen in the evolution of life, and by every analogy in the living world around us did it not serve this purpose it would long ago have disappeared, if indeed it could ever have arisen.

But to say that consciousness is the light that illumines actions is only a metaphor, we must show what the nature of consciousness is and how it functions. The actual moment of activity is the point we call the present moment where the past is continually advancing into the future and the present is receding into the past. Has that point duration? Theoretically it has not, but practically it has, for consciousness illumines before and behind it. The present moment is made up partly of a past and partly of a future—all that belongs to memory is in the past and all that belongs to imagination is in the future. The present conscious moment is the point where two lines, each representing a practically infinite reality, intersect. Now it is common experience that no absolute clear-cut division marks off the duration of that present active moment. In our individual experience it is continually varying. We are able by concentrating or by relaxing attention to admit more and more to, or to exclude more and more from, that active present moment. Our unconscious experience is continuous

then with the luminous focus of consciousness in which our activity exists, and we can easily in imagination suppose it to be enlarged indefinitely. Consciousness is the tension, which holds together the span, which constitutes the duration of the present moment. It holds there the memories and perceptions which concern the action. And to this end the brain serves consciousness by drawing us into the attitude of attention, by concentrating us on the action in which we are engaged, acting automatically as an organ of selection.

The whole of our past experience exists in our mind as a pure memory, a record. It is present at each moment of action, it is the content of life and mind, but of only a very small extent of it and of discontinuous portions of it are we at any moment conscious, of all the rest we are unconscious. At any moment there might come, and at any moment by assuming a particular bodily attitude there would come, other portions of this past to present consciousness. The recollections of which we are at any moment conscious are therefore not new existences, but selections from what already exists in its own right, selections that come into the span, the zone of activity, which consciousness is illuminating. The organ of this selection is the brain. It performs the useful office of shutting out in unconsciousness all the memory that is irrelevant to the action. It functions in this way—it controls the bodily movements and the attitudes which prepare the movements. By throwing the body into an attitude of attention, or into an attitude of preparation for a movement, it forms, so to speak, a frame into which a memory can fit; opens, as it were, a door through which memory can enter. Consciousness

acts as a tension, an apprehension, a holding together round the centre of activity of the influences which, as perceptions and memories, direct and control the action. It is a tension that is strained or relaxed as the circumstances demand. This is quite common experience. We are bent on some difficult task and we concentrate our attention upon it, we are conscious of the bodily strain with which we exclude everything that distracts us from the matter in hand, but it is an effort, a tension. Relax that tension and in flow the memories and imaginations. They are not created, manufactured, or let loose from the cells of the brain, they are always present but blocked out by action.

There are two problems of knowledge, problems which loom large in the history of philosophy and that still occupy a place of preponderant importance in logic and psychology, and these two problems are completely transformed when viewed from this standpoint of action. These are the problems of the nature of general ideas and of the laws of association of ideas. I am not going to examine or criticise the various theories which have divided schools of philosophy from one another, but, looking at the problems as they present themselves to anyone who reflects on his ordinary experience, I will try and show how profoundly different they appear accordingly as we regard them from what I may call the point of view of things or from the point of view of actions.

We may put the question of the nature of general ideas to ourselves in this way—what is the reality we denote when we use common names? Or in this way—what is the object present to our mind when we use general terms? Two answers seem possible. Either the general term is merely the name by which we group

together for convenience of thought quite independent particular things, or else the common name refers to a common nature, a really existing, universal nature which particular things partake of or in which they share. The first answer is the doctrine known as nominalism. The second, if, as in the Platonic theory, the universals are held to be absolute existences and the particulars a reflection or shadow of them, is called realism, or if the universal is held to be of the nature of a concept, that is, a form under which the particular is thought of, is called conceptualism. For our purpose we may regard the alternatives as two only—nominalism, that the common term is a name to which no objective reality corresponds, and conceptualism, that common notions although mental in their nature correspond to real similarities in things.

The other problem to which I am directing attention is the problem of the association of ideas. The fact that we associate ideas is one of the commonplaces of the mental life. Without it there could be no thinking and no discourse. We hear a word spoken or see a word written and promptly and automatically we associate with that sound or that visual sensation an idea. Moreover every simple experience to become perception gathers round it innumerable ideas, all apparently to be traced to the memories left by past experience, which determine at every moment our attitude to reality. It is common to distinguish two laws of association: the first is similarity or resemblance, and the second contiguity. They seem to work in this way—when we have a new experience, for instance a sensation, the mind recalls, or awakens, or revives from memory, past sensations that are similar or resemble it. This by itself would carry us very

little way in clothing our perceptions with meaning. But then it seems that each idea recalled by its similarity or resemblance brings with it other ideas with which it was in connection, and that these were contiguous with it in past experience. Association with past experience by resemblance and contiguity constitutes present experience a recognition, and prepares the way for the motor reaction. We need not enter into any of the controversies that the theories of the nature of general ideas and of the laws of association have evoked. Looking at the simple facts of experience let us see how completely different the problem is when viewed from the standpoint of action as distinct from the standpoint that the end of knowledge is to represent reality. This also will enable us to see the meaning of the doctrine that things are actions.

Practically in all theories of knowledge hitherto, whether they have been idealistic or realistic, the start has been made from the notion of things, and these things have been supposed in knowledge to part with something of themselves, to yield to an analysis into clear-cut concepts and percepts. Whether they were supposed to be wholly composed of these or whether they were supposed to be something outside the mind which caused impressions of themselves, things were taken to be fully formed from the first and knowledge the becoming acquainted with them. And just as things themselves were considered to be sharply divided off from one another so knowledge about them was considered to be composed of psychological elements, mental atoms, in the form of sharply-defined percepts, concepts and images. The real difficulty about all theories of association of ideas is that the laws of association, however completely they may succeed in generalising facts of

experience, are powerless to explain anything. They offer no principle by which either the necessity, the purpose, or the nature of knowledge can be deduced. But the problem is completely altered if we take the view that things are actions. We see the whole reality of conscious experience drawn into a focus of attention to life, perception combining with memory to form a motor mechanism to carry into effect the actions as they are continually being shaped before us. The whole of the spatial reality around us, and the whole of our memory behind us, one continuity of reality but shut out from us by this very bodily attitude which keeps us forward-looking to action, just so much perception and memory admitted to the focus of consciousness as will serve the action. Instead therefore of an *association* among countless separate and independent atomic constituents, we have a *dissociation* from the continuity of reality for the sole purpose of the activity of our life. Consequently it is our actions that give to reality the form of things. Things are the contractions or apprehensions of reality that the mind *dissociates* in making out the lines of possible or eventual action. Things are a schematical or diagrammatical form of action.

The reality which we call physical reality, and which we ordinarily mean when we speak of reality, is not the psychical reality of life but the schematical reality of things. So when we say that there are no things, there are only actions, we are denying the ultimate nature of that form of reality with which alone physical science deals. We are declaring that it is derived not original. The necessity on account of which it exists, the purpose it serves, is the activity that constitutes our life, but it is not itself the reality of that life. The mode of our

activity is intellectual, and the work of the intellect is to form for us a scheme or diagram against which to present the world as a sphere of our activity and to enable us to have a grasp or hold upon it. Physical science is the apprehension of reality in a schematical form. We have come then to the essential meaning of the principle that living action not scientific knowledge is the key to the solution of metaphysical problems. General ideas and scientific laws are not in their ultimate nature something that we discover in reality, nor are they formed by association, nominal or real, of simpler elements existing in their own right. We dissociate them from reality in order that we may intellectually apprehend reality. They mark out our interest or our possible action upon reality. They form a framework or background for actions. A schematical reality then is the work of the intellect. It is the framework in which all our physical science is organised and displayed, and it therefore appears to us as the reality itself. It is not the true nature of reality but an artifice or device, a means by which we live, not the very life itself. The contrast between these two realities, the schematical reality of physical science and the psychical reality which we experience in consciousness or life will be most strikingly illustrated if we consider how the ideas of space and time arise.

What is the actual experience out of which our idea of space is formed? It is an experience of extensity which enters into most if not all of our sensations. Now the quality of extensity which characterises our sensations is individual to the sensation, it is not felt as something distinct from the sensation in which it is, and there are different kinds of extensity corresponding

to different kinds of sensation. Visual extensity is not the same as the extensity of touch, and this again is different from the extensity of smell, hearing, taste. None of these extensities is the space of physical science, no one of them is geometrical space. The space of science is not perceived at all, it is conceived as a purely homogeneous medium within which at every moment the actual contents of the universe lie juxtaposed, one outside the other. It may be a necessity of thought, but it is the intellectual necessity of a scheme or diagram by means of which we represent the external universe. We therefore represent to ourselves a continuity of infinite extension in which there are no joints or interstices and within which every position is absolute.

Consider in the next place the conception of homogeneous time. We can easily satisfy ourselves that the conception of time as an equable flow at an absolute rate forming the background on which the history of the universe is being unrolled, and to which all particular durations are referred as to an absolute standard, of which indeed all particular durations are component parts, is very different from the duration which we actually experience in psychical life. In the psychical experience of duration there is a complete absence of any standard within the experience by which the time flow is measured. Psychical duration is a continuity of change but the period or rate of change is measured by some arbitrary external standard, and in the experience itself there is no limit to the amount of content that may seem to compose the duration of a psychical state. It is a quite common experience that moments of suspense seem hours, while long periods pass at times as a matter of seconds. The concept of time as a continuity of absolute homogeneous

succession—what we may call clock time—is not the time we experience in conscious life as true duration. It may be, like space, a necessity of thought, but it is the intellectual necessity of a scheme or diagram into which events may be fitted. And more than this, when we analyse the conception we see that it is not original but founded upon a conception of space with which it is practically identical. It is the externalising, that is the spatialising, of events, the placing of them outside one another and fixing them in an absolute position. Whenever we think of time the picture in our mind is not a picture of pure duration, of the unceasing change of psychical life, but a picture of space, of an absolute homogeneous extensity, which instead of being spread out around us is drawn out behind and before us.

In the case of space and time therefore we may clearly distinguish the actual experience itself from the conceptual reality which forms the scheme or diagram by means of which we set forth our knowledge. Kant's doctrine was that space and time are forms of sense perception. Our doctrine is that they are schematic or diagrammatic in their nature, not qualifying or characterising reality, but an artifice or device by which reality is apprehended. And in confirmation we point out that space and time are distinct from the extensity and duration we experience in life, and further that time is really space for what is essential to both is the same, namely the necessity of juxtaposing the objects of intellectual apprehension.

Time and space, however, are generally recognised as puzzling notions, puzzling because of the difficulty of the conception of infinity which is involved in them. Directly we try to realise what is involved in the

notions of infinite divisibility, infinite extensibility, infinite regression and progression, we seem to lose hold of the possibility of clear and concise conceptions and to be left wandering in a maze of metaphysical obscurity. In vain do mathematicians try to reassure us by affirming that the modern theories and definitions of infinity have cleared away even the appearance of contradiction from the notion. We may accept the assurance that these definitions are quite workable in mathematics and mark an enormous advance in that science, but as ordinary people we are at a loss to form any consistent idea of a quantity greater than any assignable quantity, a quantity equivalent to some proper part of itself, a quantity capable of being set in a one to one correspondence with a part of itself. What is the reason of our failure? Simply that these mathematical, purely quantitative, conceptions of reality seem to be in direct conflict with the unity and simplicity of conscious experience. The conspicuous and striking instance of this is the case of movement.

There are real movements. If direct experience assures us of anything with absolutely unquestionable certainty it assures us of this. We might almost say that this is the one direct and absolute datum of immediate consciousness. But a movement as it is experienced is entirely different from the image of movement which we obtain when we try to apprehend it intellectually. The movement we experience is simple and indivisible. As a datum of experience it is original, it is not derived from and not dependent upon any previous or different kind of experience. When we think about it, however, when we set it as an object

before the mind, it does not appear as a simple thing at all, but a notion compounded of several different notions and founded upon them. The notion of movement breaks up and becomes a relation of elements each of which is itself incapable of moving and each of which is itself composite, made up of parts the divisibility of which admits of no limit.

What do I ordinarily mean when I think of a movement? I mean that something—a thing that occupies space—from being in a position that I designate as *here* changes into a position that I designate as *there*, that a thing which at one moment is here in another and later moment is there, and that the thing which was here and is now there is identically the same thing. There are therefore three essential elements in the notion of movement, viz. homogeneous space, homogeneous time, and a thing that remains itself, however much it alters its relation to other things by its change of place and time. Now what is the notion of a thing and how do we come by it? To ask how we come by the notion may seem superfluous as things are so fundamental to our idea of reality that they are involved in the very experience of perceiving. We may not be able to penetrate to the ultimate nature of a thing but as a concrete object present to us it would seem to need no justification whatever. Of the three elements in movement, space and time may be abstractions, mere relations of things, abstracted by our thinking and hypostatised as realities, but the concrete thing itself is so necessary to our idea of movement that in its absence we should say movement is unthinkable for there is nothing to move. A concrete thing we say is something that actually occupies space for some definite period of time. What we all recognise as essential

in our notion of a thing is that whether it is composed of what we call stuff, or whether it is merely an equilibrium of forces, it is self-identical, it can remain unchanged for some period of time during which it is that thing and not some other thing. So we represent these things as independent bodies whose outlines are absolutely determined and each of which at every moment occupies one definite and absolute place. Movement is the change of place from moment to moment of what itself does not change. Whence then do we derive this notion of a thing? From our conscious experience no doubt for we have no other source of knowledge. But how? Clearly not as an original datum, for experience is continuous. It is true I may be conscious of an object, then unconscious of it, and then again conscious of it, but this discontinuity of the consciousness of an object is not the discontinuity with the rest of reality that constitutes thinghood. Each of my senses gives me one continuous sensation within which I mark out distinctions by a process not of association of elements, separately given, but by a process of dissociation. It is true I may combine the data of different senses—sight, touch, sound, taste, smell, muscular effort to form definite objects which I then recognise as independent material things, but I do so in every case by dissociating elements, by discarding and leaving behind portions which were experienced as continuous. We cannot therefore appeal to direct sense experience for our perception of the external world as separate things. In primary perceptions, in immediate experience, we have a continuity which changes continually and as a whole from moment to moment, yet we at once in apprehending it divide it into two different and opposite terms, one

we distinguish as bodies in space and term permanence, and the other as movements of these bodies in space which we term change. This distinction is not given in immediate experience and it is not justified by physical science. In fact in the ultimate conceptions of science we might say that the universe recovers its original continuity. Gravitation for example extends its influence not only throughout our solar system, but, as is now known, throughout our stellar system, and what is this but to consider the universe as a vast system of reciprocal action? And what is the atom in modern physical theory? It is the centre whence lines of force are radiating out into space. So considered, is not each atom in its fulness occupying the whole of space and are not all atoms interpenetrating?

There is therefore a marked and clear distinction in our experience of movement. This distinction is a contrast between the movement we directly experience as conscious activity and the movement of external physical things. In the first, change is continuous and inclusive; in the second, a permanent thing seems to be undergoing an alteration of purely external relations in a homogeneous space by succession in a homogeneous time. That is to say, when we seek to understand a movement we analyse it into three distinct elements each of which is an immobility, something permanent and unalterable. We say there can be no movement unless there is a thing,—that is something, itself immobile, which is moved, and space,—that is a place in which movement can be effected but which itself is unmovable, and time,—that is a rate of succession which is itself unalterable. Movement we say is a relation of these three immobilities.

There is a logical, or rather I should say in order to

avoid any narrowly formal interpretation of the word logical, an intellectual difficulty in our ordinary notion of movement. The difficulty has exercised philosophers in all ages, it found expression in ancient Greek philosophy and it appears in modern philosophy. No more striking expression of it has ever been formulated than the four famous arguments of Zeno of Elea, in Greece, who lived at the beginning of the fifth century B.C. and whose arguments are preserved to us in the *Physics* of Aristotle. Each of these four arguments led to the same conclusion, that movement is impossible, that in fact nothing moves. Practically the same conclusion is come to in Mr. F. H. Bradley's great philosophical work *Appearance and Reality*. There it is shown, by what are identically the same arguments, though perhaps less picturesque in their form, that movement and change are notions which contain an inherent contradiction and consequently are appearance, belonging to what seems, not to what is. We might also show that this notion that movement is appearance and not reality is implicit in all those philosophies which like that of Plato are classed as intellectual. The ultimate reality is conceived as unchanging and eternal, and the world of change and movement, the world in time and space, as seeming or appearing, a derived and inferior world, a shadow or degradation of that which is eternal. The philosophy of Bergson is in strong and striking contrast to these. For it movement is the reality.

The problem of movement is not however a purely philosophical problem, it is a very important scientific problem. It is possible to hold on scientific grounds,—on grounds that do not depend on the logical implications of concepts but on what in science we call facts,—that movement, as we commonly apprehend it,

is impossible. If for instance the vortex theory of matter is true, then movement is not what we ordinarily think it is. We distinguish two kinds of movement—movement of translation and movement of vibration or undulation,—wave movement. The waves that travel over the sea do not carry with them the material but give form to it—the water is not carried along, its form is disturbed as the wave passes over its surface. Light, sound, electricity, probably also gravitation, are such wave movements. They translate no material. If the atom is a vortex ring formed in an ether which is distributed throughout stellar space then it is clear that all movement of translation is purely appearance, and the movement of the atom can only be the continual dissolution and reformation of the vortex ring. If this is the constitution of the atom, then, as my body is ultimately composed of atoms, its movement across the room, for instance, is not the translation of anything material but a pure form imposed on new material. Practically of course science would be entirely unaffected in its methods and generalisations were such a conclusion to be forced upon it by the study of its own facts, but it would bring strong support to the doctrine that intellectual apprehension has not been acquired for the purpose of pure knowledge alone.

Let us now examine the Zeno arguments. The first is that before the body which is moved can arrive at the goal, it must first have arrived at the point half-way, and previously to that at the quarter, and so on *ad infinitum*. A body therefore, in order to attain to one point from another, must pass through infinitely many spaces. But the infinite cannot be passed through

in a finite time, and therefore motion is impossible. The second argument is called the Achilles. The slowest creature, the tortoise, could never be overtaken by the swiftest, Achilles, if it had once made a step in advance of him. For in order to overtake the tortoise, Achilles must first reach the place where the tortoise was when he started; but while Achilles is reaching this place the tortoise has moved on and Achilles always finds he has a step to take. The third argument is the Flying Arrow. The flying arrow is at every moment of its flight at rest in some particular point. If it is at every moment at rest it does not move. The fourth argument is that when two parallel rows of points or masses moving in opposite directions pass in mid-course a similar row not moving but at rest, each moving row passes the other moving row in half the time that it passes the stationary row though the space occupied by each of the three rows is exactly the same. Therefore the velocity of the movement is the double of itself.

In each of these arguments the principle invoked is the same, it is the principle of the infinite divisibility of space and time, or rather perhaps we should say the incompatibility of the continuity which makes a movement with the infinite divisibility of the space and time which are necessary in order that there may be a movement. A movement is continuous from start to finish, but if it is the translation of a body over a certain space during a certain time then it seems that the movement must be divisible into as many parts as there are parts in the space covered and in the time occupied. Therefore a movement, it would seem, must be composed of an infinite number of rests strung together, and that of course is contradictory and absurd.

To this Bergson opposes the actual nature of real movement. A movement is one undivided and indivisible act. Real movement is psychical in its nature. We may oppose to it another movement, we may interrupt it and so alter or destroy it, but we can no more divide it than we can divide a feeling or an emotion, or an action. When we seem to divide a movement, what we are really dividing is the intellectual scheme or diagram against which we present it externally to the mind. This we can divide because it is quantitative in its nature but movement is qualitative. Because we know that in one second of red coloured light there occur 400 billion vibrations it does not follow that there are 400 billion separate divisions of the sensation red-colour.

Before we pass from these arguments of Zeno I must notice the claim the modern mathematicians make to reconcile the contradiction and remove the paradox without having any recourse to psychological considerations. Modern mathematics claims to have abolished all contradiction in the conception of infinity. Zeno's arguments consequently are not so much answered as shown to have lost their significance. Instead of seeing a contradiction between infinite divisibility and continuity modern mathematics declares the two notions identical. If between any two points we have to suppose an infinity of points so that there is no next point then there is continuity between these points. "A cinematograph," says Mr. Bertrand Russell, alluding to a famous illustration of Bergson, "in which there are an infinite number of films, and in which there is never a *next* film because an infinite number come between any two, will perfectly represent

a continuous motion.”¹ The discovery, for it is nothing less than this, by modern mathematics of the nature of infinity marks a most enormous advance in that science. A conception that always seemed to block the advance of human thought by interposing the insuperable difficulty of a blank contradiction is now changed into a serviceable instrument of progress. If the difficulty in the case of movement rested solely on the conception of infinity we should have to acknowledge that mathematics is fully competent to solve it. But it is not so and this is the crucial point. It is not the infinity of the divisibility but the divisibility itself that is in question. Suppose we restate the old Zeno arguments in the terms of the modern definition of infinity, our difficulty is not gone. Let us say, for example, following the modern mathematician, that while there is a greater number of divisions in the steps of Achilles and also in the steps of the tortoise than any assignable number, yet between the two series there is a one-one correspondence, and therefore there may be infinite variation in the distance separating them. In this way mathematics by its conception of continuity as infinite series makes infinity reconcile, instead of posing, a contradiction. But can we apply this concept to movement itself? This is the real dilemma. If the continuity of a movement is the continuity of an act then it is one and indivisible, not infinitely divisible, not divisible at all. Consider any movement—the step of Achilles or the step of the tortoise as an act—it is evident at once that it is not decomposable into a finite or even infinite multiplicity. It is one and indivisible and to divide it is to destroy it.

¹ A paper on *The Philosophy of Bergson*, p. 18. (Macmillan.)

Real movements are psychological acts, actions; they are pure qualities. How do they come to appear as quantities, to be composed of parts? By an intellectual artifice or device, an artifice which turns actions into things, which by viewing movements against a background of space and time, which are purely quantitative, makes the movements partake of the divisions of the spatial tracks the intellect has itself abstracted. Movements consequently become calculable differences of direction and velocity, the movement is projected into space, the quality is restricted to consciousness, and the relation between them then appears only as a mysterious correspondence. In a movement we have a concrete and indivisible extensity beneath which there is underlying a divisible space. Our doctrine is that the movement is original and that the space is derived.

What then is this device by which actions become things and things are conceived as contained in space and time? What is its nature and purpose? We have seen that our body is the centre, the focus, where the influences coming from without and the movements responding from within meet. At this meeting-point two great powers, or functions of a spiritual reality, are manifesting themselves—perception which is the consciousness of the influences without, and memory which is the record the passing activity leaves behind it. The body is this meeting-point, the limit at which life is acting. The body, too, is perceived as a thing, sharply marked off from the mind which uses it. The perception of the body as a thing is itself a selection which serves our action. The body is organised to exclude from conscious perception whatever does not concern the actions it is carrying out. Our perceptions are therefore selections from reality, and it is this

selection which in the first place gives them the form of things. But memory is also a selection. It joins the present to the past in two ways. It excludes and it prolongs. It excludes from consciousness whatever does not interpret the perception in relation to the action in progress, and it prolongs the perception into action by contracting the flowing experience into motor habits. Fleeting perceptions are changed by memory into enduring moments. These contractions of memory take for us the form of things. Things therefore are our world. They are our actions, actual and possible, materialised, solidified. It is not we therefore who give to things their reality, but we who give to reality the form of things. Reality is movement, an ever-changing activity, and from the stream within us and without us our mind selects by means of the marvellous motor mechanism it has formed—our body. This, then, is what we mean when we say “there are no things, there are only actions.”

The doctrine which is expressed in this phrase rests on the fundamental metaphysical principle of our philosophy—the nature of change. Our argument has taken the form of a dilemma, and if we assert the reality of things there is no avoiding the horns of the dilemma. If there are things—ultimate unalterable constituents of reality—there are no real movements: if there are real movements there are no things. But are not both,—things and movements—equally facts of experience? Is there any ground whatever for choosing one fact rather than the other and declaring that it must be ultimate and the other derived? Unhesitatingly we reply there is. The facts of life and consciousness are the ground, for in them we have the actual experience of change. In our individual life this con-

tinuous change which we directly experience is unceasing activity, activity expresses itself in actions, and things are the form imposed on reality by the necessities of action.

But does this accord with physical science? Are we not propounding a doctrine that must destroy the very basis of science, that in fact denies its claim to be knowledge? Were it so it would be vain to pursue the question further—it would render the task of philosophy hopeless and condemn it to sterility. But it is not so. It is not physical science that philosophy declares false but a metaphysic, for the most part unconscious, which seems to underlie it, which is thought to be revealed by it, which is assumed to be necessary to it, but which in fact is quite distinct from it,—a metaphysic not confined to science for it has been the obstacle to a true philosophy. Physical science is not affected. We deny neither the reality of its object nor the adequacy of its method, on the contrary we affirm that the intellect is specially adapted to apprehend matter. What we deny is that intellectual apprehension can attain to ultimate reality, and we instance the failure to comprehend life. This failure is due to the fact that life is an order of reality that is original, matter an order that is derived. It is not a new method of science we are proposing but a new method of philosophy, a method which will bring it into accord with science, and which will supplement, not supplant, the method of science.

CHAPTER VII

THE VITAL IMPULSE

WE have seen that when we view the universe from the psychological standpoint, the central fact is our activity. The conditions and needs of our actions determine the form in which we apprehend reality, and our consciousness, the apprehension of this reality, is the light that plays on the zone of our activity. Consciousness is a tension, holding the past in the present experience, a tension that is strained or relaxed as the needs of our actions require. Our mind, though it may be unconfined to our body, is bound to it, and this body, which is the centre and the condition of our activity, is something which has a beginning and an end. But it has no absolute beginning, it arises from a germ that carries within it the accumulated past of an indefinitely long ancestry, and it has no absolute end, for it passes on this current of life to a new generation of germs.

One thing becomes clearer and clearer as we study this individual consciousness from the standpoint of action, namely, that the body, the privileged object which seems to contain bound up within it the whole of our reality, is no more than the focus or point of our activity where it is inserted into reality; it is the instrument of a life or mind the full reality of which overflows it on every side, overflows it in space and in

time. And even this life or mind itself is but the local and partial manifestation, the concentrated human form, of a centre of activity within a far wider reality that overflows it. What do we know about this total activity of life of which the whole of humanity is perhaps only an insignificant part ?

The problem that presents itself to us when we try to comprehend what life is, is analogous to that which confronted us in the problem of the relation of mind to body. We saw then that the first and most obvious fact which forces itself upon our attention is the existence in the world around us of certain objects, certain material objects of great complexity of organisation, which seem to have the function of creating, and of maintaining in existence, minds. The mentality of these objects appears to consist in a power of changing the influences that reach them from without into perceptions of the things from which those influences emanate and to retain and associate and combine together the records of the impressions of things in memories. But the more we consider the wonderful material organism, the brain, and the more we study the nature of mind and consciousness, the more impossible and incredible it appears that the material organism can be the creator of mind, and all our consideration led us to condemn the supposition as absurd. We came to the conclusion that the brain is a motor mechanism, an organism for the reception and transmission of movement, and the instrument of the mind whose reality it neither creates nor maintains.

In like manner when we ask what life is, it seems to us that it is a property or power or function that some objects possess of organising themselves into self-centred individual bodies which make use of the general

unorganised matter of the universe to support, increase and reproduce themselves. And when we study these living bodies we seem able to distinguish in them, even to separate out, a special substance in which this phenomenon of life alone is present and which seems to contain within it the whole of that reality which has developed innumerable forms and which passes on the life it holds from one generation to another. This substance we call protoplasm. And when we study living objects in the science of biology, and, noting the resemblances in vital functions and the principle of reproduction, conclude that the whole phenomenon of life on this planet is simple in its origin and continuous in its development, it is this substance, protoplasm, which we think of as the single upholder of life and the sole condition of its continuity. But directly we concentrate our attention on this fact and try to explain it, we are driven, with ever-growing conviction, by the various problems to which it gives rise, to the certainty that in this material condition of life which is apparently prior to life, we have not the reality of life itself, but only the instrument of life. And we see that life is a reality that overflows matter, that matter, protoplasm, is to it what the body is to the mind, the instrument which it has formed to do its work.

We can easily see what the difficulties of this problem are if we consider the current theories of the nature of life. There are two opposed scientific theories of life—*mechanism* and *vitalism*. Both are scientific theories and the controversies concerning them are scientific controversies.

The mechanistic theory is that all the phenomena of living matter are a condition of, and ultimately explicable as, a combination of purely material elements.

Whatever the constitution of matter in general may be, there is no difference, according to the theory, between living matter and inert unorganised matter, except that the one is of enormously more complex structure than the other. Living matter and its various processes—nutrition, assimilation, growth, reproduction—are all of the same ultimate nature as the grouping of molecules in the various elements, the attraction and repulsion of elements in chemical combinations, and the formation and growth of crystals and colloids. Protoplasm which exhibits the movements that develop into the higher processes of life, though as simple and amenable to analysis as inert matter, must have acquired its special power by a combination of elements or a principle of combination not easy to repeat and that appears to have occurred once only in the history of our planet (or at any rate once only to have secured the present result) for all living protoplasm seems to be derived from previously existing protoplasm. Nevertheless the theory is that there is nothing in the movements and in the development which they have undergone and are undergoing which cannot be explained by the actual constitution of protoplasm, however simple and comparatively structureless that substance may appear. The attempts of chemists to synthesise protoplasm, to produce by combination of the elements into which it is easy to dissociate it, a jelly that will exhibit really living movements, have so far been vain, may perhaps never reach success, but this negative result is due only, according to the theory, to the impossibility of realising the rare condition under which a first synthesis can take place, but there is no reason to suppose it impossible, and the enormous advance in chemical methods and results leads many to think that the time is very near when this

crowning achievement will be realised. And it is undeniable that the progress of chemical science gives ground for the confidence and tenacity with which the mechanistic theory is held. All living phenomena seem the accompaniment and result of the formation of molecules of very high complexity of which carbon is the base, so that it seems that without carbon life as we know it is impossible. But silicon has an atom of the same valency as carbon and similar to it in its affinities, except that to bring about its combinations a temperature far higher than is easily obtainable on earth is required. Quite recently, however, under laboratory conditions a substance similar to chloroform but with silicon as its base has been synthesised.¹ What more likely then than that combinations of silicon, similar to the combinations of carbon that support life on earth, take place in the sun and that life is possible there? When we think of such a possibility does it not seem as though life was just a natural outcome of material conditions, as though all that is necessary is to find or produce the conditions under which these complex combinations take place, and the phenomena of life and consciousness will follow? Such is the mechanistic conception of life. It is only part, of course a necessary part, of the conception of universal mechanism. Mechanism means that nothing new can come out of the universe, nothing that is not already there. Every movement has an exact equivalent. Every process of change is reversible, conceivably if not practically. Every state of the universe is calculable beforehand. There are difficulties in the conception of infinite extensibility

¹ Silico-chloroform, a friend informs me, was first prepared by Wöhler and Buff (*Annalen*, 104-94) by the action of dry hydrogen chloride upon silicon at red heat. It does not decompose under 800° C.

in space and infinite regression and progression in time, but as far as the universe is open to our experience, all that our scientific conceptions seem able to embrace, is, it is thought, subject to this mathematical conception of an exact give and take.

This idea of the whole of reality as a perfect mechanism seems so essential to science that it is accepted in all the physical sciences as an axiom and it seems as though any limits which we might have to set to its universality are practically negligible. It is to all intents and purposes identical with scientific method itself. It is only when we come to the natural sciences and to biology in particular that we meet with a subject-matter which offers any difficulty. In life there appears to be something in contradiction of this axiom of physical science. Life seems to give more in the result than is present in the conditions.

The strength of the mechanistic theory in regard to life is most apparent when we consider vital phenomena in their simplest manifestations and in the most lowly organisms. Here vital movements so closely resemble physical movements, and some physical movements approach so closely to vital movements, that it is difficult to believe that any really impassable gulf separates the two. The difficulties of the theory are only serious when it tries to account for the development and preservation of living forms and to co-ordinate vital activity with the forces into which the energy that is dispersing in the universe is divided. There are certain facts of biology which seem to be not only impossible to include within a mechanistic conception, but also to be directly opposite to that conception, to manifest the existence of a principle the very reverse of mechanism, which finds all explanation

in the past, a principle which indicates a purpose to be fulfilled in the future and is therefore named finalism. These facts have led some biologists to formulate the theory of vitalism.

The term vitalism is often used to describe a philosophical theory. It is especially associated with the philosophy of Bergson, which teaches that life is the ultimate reality, and as a philosophical theory it is contrasted with intellectualism or rationalism, which gives priority to reason, and with voluntarism, which gives priority to conation or will. We are now using the term vitalism to denote a scientific theory only. There are certain vital phenomena that cannot possibly be explained as resulting from the conditions present in the immediately preceding state as mechanism implies. In vital activity there is an entirely new principle at work. There is purpose, and purpose means the control and direction of activity to an end that is future. Now if mechanism were true then every state of a living cell must be wholly conditioned by the previous state and the present conditions of the environment so far as they affect it. But in fact we find something quite different. We find that in living organisms, plants or animals, there is something which regulates the work of the different parts of the organism purely with regard to the well-being of the organism as a whole. Thus if we injure an organ, cells whose ordinary function is quite different will take on the duty of forming repairing tissue. If a newt loses a limb, cells which were performing quite different work will restore the limb, making it the exact counterpart of the lost limb, or rather will restore the animal to what it would have been if it had not suffered the loss. Professor Driesch in a famous experiment has shown that

if we divide the embryo of a sea-urchin we can get cells which normally would have produced special parts of an individual sea-urchin to develop into complete individual sea-urchins. We can in fact separate the cells at the stage of the second subdivision of the nucleus and obtain four individuals in place of the one. These facts show that in a living organism the life principle acts with regard to the whole and directs and controls the parts strictly with regard to the purpose and function of the whole. The vitalists therefore maintain that life is of the nature of an entelechy, using the old Aristotelian word. An entelechy is an indivisible individual whole which acts as a whole in every minutest part. It is true that entelechy is little more than a name to cover our ignorance of anything which we can describe or present as a concrete fact, but what it points to is none the less important as demonstrating the total inadequacy of the mechanistic conception of life. The human ovum and spermatozoon are minute masses of protoplasm, practically structureless, indistinguishable by the physicist or chemist from any similar mass of protoplasm, yet the entelechy controlling each and the entelechy controlling their union is something that no stretch of the imagination can co-ordinate with the actual material, so that the infinite variety of development which will proceed from them can be supposed to have a one-one correspondence with parts present in the minute tissue. And the difficulty is not the minuteness of the mass of the tissue but the variation of function which the entelechy can impose at every moment of the development of the structure.

But vitalism also has formidable difficulties to meet. The vital principle, "entelechy," is the individuality of an equipotential system, but then there is the fact that

in nature we never meet with complete individuality. Every cell of our bodies has its own individual life as well as being subservient to our life—is there an entelechy for each cell of the body and if so what is its relation to the entelechy that constitutes the whole? We are reminded of the theory of the philosopher Leibniz that reality is a system of monads, simple substances into which and out of which nothing can pass, but each of which is a self-centred individual experience in harmony with other centres, within a universe reflected in each. The difficulty which this theory had to meet confronts us in the vitalist theory of entelechy. What principle, we at once ask, is to reconcile the independent individuality of each with the general harmony of the whole? We cannot, as Leibniz did, invoke the conception of God and suppose a pre-established harmony imposed by His direct act.

It is the great fact of evolution which brings to clear light the utter insufficiency of mechanism or vitalism to explain the full reality of life. Two facts seem established beyond question in our knowledge of the history of living forms. One is that every individual living form, plant or animal, is absolutely continuous with its past, continuous in a sense that is without analogy in the inorganic world. It is the continuation of an indefinite past in a living present. It is not produced by but carries along with it this past; it is not merely the last form into which atoms have become grouped by the turn of a kaleidoscope. The other fact we may name transformism, the fact that there is a continuous change in the forms of living beings, adapting them to the varying or altering conditions of life, and this change, whether it is regular or spasmodic in its periodicity, is the origin of species. The first fact is

the *duration* of living forms, and the second fact is the *creation* of new forms.

We need not enter fully into the many questions which have arisen as to the nature of the evolution of living forms, it will be enough for us to distinguish the characteristics of the two theories that have grouped themselves round the great names of Darwin and Lamarck. Two opposite principles of explanation, analogous to the opposite principles of mechanism and vitalism, seem to have directed each group of theories. According to the Darwinian theory of Natural Selection the different species have arisen as a result of a selection in which the individual efforts of the creatures themselves are practically of no account, circumstances beyond the control of individuals have eliminated the unfit and allowed the fittest to survive. This theory has been emphasised in Weissmann's hypothesis of the continuity of the germ-plasm, according to which the cells destined to form a new generation are separated off from the very first, and before separate individual life begins, from the somatic cells which form the body of the individual and which alone undergo development or acquire character during the life of the individual. Consequently the struggle for existence is ultimately a struggle of the germs and not of the individuals except in so far as the successful struggle of the individual secures an advantage for the germ. On the other hand is the older Lamarckian theory that the variation which results in a new species is not an accidental variation inherent in the germ, but springs from the effort of the living creature itself to adapt itself to the circumstances of its existence. The new form of this doctrine called Neo-Lamarckism implies consciousness

and will in the effort, and so admits an internal and psychological principle of development.

But these principles even if we suppose them both to be true and each to stand as the explanation of some facts are totally insufficient to explain the great fact itself of evolution. We must look for the meaning of life in a principle deeper and wider than any which science has propounded. The whole reality, the total activity, of life cannot be conceived as contained within the forms in which its present activity is manifested nor in the general form of that matter, protoplasm, by means of which it works. So confined we could never account for its duration nor for its continual creation. We must therefore conceive it as a great and continuous movement, manifesting itself in the individual forms it produces, as buds are formed on the stem of a tree. It is a movement the form of whose activity is shown in its tendency to concentrate and contract into a tension, in its turn to be relaxed in an extension, the type of which activity we each experience in our own life which is very part of it. This conception is Bergson's doctrine of the vital impulse, the spring of life, and the principle that explains it he has named creative evolution.

To understand the meaning of this vital impulse we must make the two ideas which are essential to it clear, namely, the idea of duration and the idea of creation. This will offer no difficulty if we have fully apprehended the theory of the nature of memory. The evolution of forms of life requires us to suppose the existence of what we can only call unconscious memory. If we can rid ourselves of the idea that there is any contradiction in speaking of a memory which is not conscious, if we think of the reality

unremembered in the same way in which we think of the reality unperceived, if we think of consciousness as the clear light which illumines the immediate zone of our individual activity, we shall easily seize the notion of an impulse of life. Why does evolution repeat the past? Why are the forms of life produced along definite, narrow, marked outlines of development? Why when new circumstances call forth new organs, or a new development of organs, is the response always just as if an individual from his past experience were meeting a new situation? In the activity of life we are compelled to recognise that the whole past is functioning in a present movement. Now if we found it to be impossible, even to the point of absurdity, to suppose that in our own lives our memory is carried along by us in our body so that separate recollections are stored in brain-cells or preserved in nerve-tracks, it is far more incredible that the memory manifested in evolution is preserved in the substance of protoplasm, still less in the grouping of its atoms and molecules.

Life then is something that endures. It is psychological in its nature, that is, it is a time existence, something that endures and changes continually, endures by changing, in that it carries with it all its past in its present activity. But here be it noted when we speak of the existence of the past in the present, we mean the existence of the past as present memory not the past as present activity. The past is over and done; it is past, not present; it was. But the meaning of duration is that the past though acted and over is continued into and carried along in the present.

There is of course no conceivable way of proving experimentally the impossibility of producing a living

cell by the synthesis of chemical elements. But if we consider the conditions which would have to be fulfilled in order that there should be produced a living cell which could be identical with any kind of actually existing living cell, we shall be convinced of the absurdity of the mechanistic hypothesis. I do not say that a synthesis which should produce the conditions in which a real duration might begin is inconceivable; but no known living cell however simple in form and function—an amoeba or what you will—is just the combination of its material elements and nothing else. The amoeba has as long a history as man himself and the memory of all that past history would have to be synthesised with the amoeba, just as the memory of the human race would have to be synthesised by any one who would produce in his laboratory an artificial human ovum or spermatozoon.

Mechanistic explanation has an overpowering attraction for the mind. There is something about materialism so in accordance with the natural bent of our minds that even when we convince ourselves of its absurdity, we are drawn to it as the needle to the magnet. The reason is that our mind is formed naturally to comprehend matter and matter is the form which our mind gives to reality. The intellect is only truly itself, only performing its function, when it can seize the reality in its stable condition, when it has deprived it of mobility. This is the form of our activity. We know, or we may know for all science teaches us, that there is no rest, that everything changes continually, but what conception could we form of our lives, what purpose and achievement could we possess in our work, if the material of it did not take for us the form of the solid? We should feel like Alice in

Wonderland at the game of croquet in which the players had flamingoes for mallets and hedgehogs for balls.

We have now to make clear the other fact which characterises the evolution of life, a fact which neither mechanism nor vitalism can explain, creation—the continuous creation of unforeseeable form. When we manufacture a machine we begin by assembling the parts and then putting them together and all the work that the machine can do can be exactly calculated from the parts that are assembled. If the machine is designed to perform a certain work, it can do nothing until every essential part is fitted in its place. There is nothing more in the whole than has been brought together by the parts. It is by a process of association and addition, a process of building up, that we make a machine. But in an organism the very reverse is true. There are no parts which have any separate existence as parts. We know the parts by dissociation within an indivisible whole. There is practically no limit to this power of dissociation, but the natural bent of our mind makes us see in this dissociation and division an association and addition, so that, if we study the structure of an organism, we are lost in wonder at the complexity of the parts, which seem as in a machine to have been brought together. Formerly this was the great theistic argument. Only a divine artificer of infinite intelligence and power could have assembled and designed that machine which is the living body. This was the argument of Paley in his *Natural Theology*, and mechanism has done nothing more than replace the hypothesis of a divine artificer by that of a grouping of natural elements under physical laws. The conception is wholly inadequate. In an organism the

whole is prior to the parts. An organism lives and grows by continual creation. In the very fact that it endures, the past which it carries is being added to so that no moment can merely repeat a past moment. At every moment a changed reality is acting. In the adaptation of the organism there is a continuity of change which is never a repetition as in a machine.

And what is true of each organism is true of the evolution of life generally. Every moment sees new forms arise which are unforeseeable, marks an invention as well as prolongs a tendency, just because each is a duration carrying with it the past, and not a chance new arrangement of purely spatial elements. When we think of the forms of living creatures it is clear that the question whether protoplasm has or has not increased in amount, or the question of the conditions which may govern its increase or decrease, is indifferent to the great and salient facts of life. Protoplasm is the instrument life uses, not its creator.

We may now see distinctly what is implied in this doctrine of the impulse. In the continually changing forms of life, in the continual evolution of new species, we have not the adaptation of a substance to the various conditions which external circumstances determine for it, nor yet have we the formed purpose or plan or final end which some force, working through material substance, is striving to realise, we have an original impulse which is passing from generation to generation of germs by means of developed organisms. The spring of our vital activity is in the impulse that lies behind us. This impulse is not a thing but a tendency. The evolution of living forms is the development of a tendency, one and indivisible in its origin, split up and divergent in its progress. Essentially psychological,

which means that time is not indifferent to it as in the notion of physical things, but the very stuff of its being. We think of its past as over and non-existent ; we think of the infinite forms which have succeeded one another in the long roll of its history which we try to spell out in the fragmentary records that are left to us, but this is due to the narrowness of our outlook on an immense reality, and the mode of our apprehension itself is an effect produced by evolution. Like our own existence, in which the past which is acted and over is still with us in the form and character of our present activity, the life-impulse bears along in it the whole of its past.

In this vital impulse we have a principle which will interpret facts that the ordinary scientific theories of evolution can never comprehend. We can see why it is that we meet with similar structures and organs along lines of evolution widely separated from one another and widely divergent in their tendency. However simple in its origin, the life-impulse has developed its activity by dividing, by splitting up into tendencies that have followed divergent paths, each developing apart and adapting itself to its own special circumstances, each parting with something of the whole yet each exhibiting in the forms it produces a kinship to the others, a unity of type and similarity in the structure and functions of its organs. In all its various development the impulse retains and imparts what belongs to its common origin. And in the continual evolution of new forms of life we are presented with a problem exactly analogous to that which confronted us in the problem of mind and body. There is a vast activity in being of which not only we but humanity itself is but a partial manifestation and attainment. This activity is a tendency seeking a path or direction or outlet for

itself and meeting continually with opposition. Just as in the case of mind and body, so this activity makes of the resistance itself an instrument of its advance. In the case of mind and body we saw that, situated as we are, it must seem that the body is prior to the mind, and this we saw is due to the nature of our consciousness lighting up the zone of our activity. We saw why everything seemed to happen as if our perceptions and memories were being manufactured and stored in the brain, the motor mechanism by which the mind acts, and whose function is to control the bodily movements. So in like manner it appears—and we may see why it must appear—that matter, inert unorganised matter, the instrument of the activity of life, is prior to, and a condition of, the existence of life. Everything seems to happen just as if life were produced by, and preserved in, matter, because we observe action. Our standpoint is our attitude of attention to action in progress; it is in and by means of matter that action is realised; and therefore it is only in matter that we are aware of living activity. But life, as we have seen, is duration; matter is a limit; a limit cannot contain within it, and be prior to, the whole within which it is a limit. It is therefore, from this standpoint of action, contradictory, or at least unmeaning, to say that matter is prior to life. It is as if we were to say that space is prior to time, and contains and preserves it.

It is not necessary to enter into all the problems of evolution, nor even to attempt a general survey of them, in order to show the light that is thrown on the nature and meaning of facts by this principle of an original impulse. There is, however, one feature in

our own evolution which we may single out for special examination because it is essential to understand it, if we would apprehend the full meaning of the metaphysical principle we are insisting on. It is the presence in us, and the relation to one another, of two distinct modes of mental activity—instinct and intelligence. The twofold form of consciousness, intuition and intelligence, is due to the twofold form of the real, life and matter. Intuition is the knowledge of life, intelligence is the knowledge of matter. Intuition is instinct, sympathy, an apprehension of reality from within. It is the artist's insight. It is the lover's devotion, the mother's sacrifice. It is all in our consciousness which enters into the feeling that our life continues itself in the reality which it apprehends. Intelligence on the contrary is the knowledge of a reality as we view it externally, the apprehension of that which stands over against us, it may be opposing us. It is the taking stock of our situation. Instinct is innate knowledge. Intelligence is acquired knowledge.

All theories of knowledge hitherto have derived either instinct from intelligence or intelligence from instinct. It has been held that they are two forms of our conscious activity originally one and the same. Some theories have tried to account for the origin of intelligence as a development of primal instincts, have supposed instincts to become the object of conscious attention and so to develop into intelligence, others have tried to show how intelligence gives rise to instinct, by becoming automatic, the active consciousness falling asleep in habits, which so become instincts. And then by theories of heredity it is sought to show how acquired habits, once intelligent, now unconscious and

automatic, may be transmitted as a characteristic from generation to generation, or preserved or modified by a natural selection of germs. In this way it is supposed we may account for those highly developed instincts which we meet with in some animals.

Our theory is that instinct and intelligence are different in kind—two modes of activity opposed to one another in every respect, so that it is impossible to conceive the one to be derived from the other. They are complementary but not identical. They are two directions of an opposing tendency. Instinct is not degraded intelligence, and intelligence is not uplifted instinct. The original impulse of life held them both and has developed both, but unequally. And this is plainly evident if we read the lesson of evolution. The greatest perfection of instinct has been reached along the line of the insects culminating in the hymenoptera, while intelligence has evolved in the vertebrates with its greatest perfection in man. Along the one line has been a continuous evolution of instinct, along the other a continuous evolution of intellect, and nowhere has there been an evolution of instinct into intelligence or of intelligence into instinct.

When we speak of instinct and intelligence and compare them as modes of our own mental activity, we seldom take into account the phenomena of insect life. Until Bergson's *Évolution Créatrice* few psychologists seem to have felt that insect behaviour presented a psychological problem in addition to the biological problem. The contrivances and adaptations that make up the cycle of insect life seem altogether so removed from any experience that we are conscious of in our own lives that ordinarily they hardly seem to affect the problem of knowledge at all. We marvel at their

ingenuity, but we class their actions and reactions with the tropisms of plant life and with mechanical reflexes whose exact adjustment results in perfect adaptation to environment. It is true we attribute to them feelings, and purposes, and volitions, but we do so by a conscious anthropomorphism which never really deceives us. And yet it is clearly evident that these creatures (small only in their relation to us and from our standpoint) are in exactly the same relation to the activity of life as we are. Their bodies are organised into motor mechanisms. The type is very different from ours it is true, yet it is strictly analogous in every essential feature. They have a nervous system, an organisation of cells and fibres to receive influences from without and transmit them as actions. We cannot doubt that there is a mind, whether or not it ever takes the form of intellect, as in us, focussed at the centres where the sensory fibres transmit their activity to the motor fibres, fixed in attention to the action in progress. Yet the mode of their activity presents a most perfect contrast to our own.

Instinct and intelligence are perhaps never to be found pure. Yet it seems that in their evolution each has developed continuously irrespective of the other. In the insect world are numerous instances of instincts which have reached great perfection by an evolution which does not appear to have required the aid of intelligence. In humanity, intellect has evolved by discarding instinct, by a continuous development away from instinct, as though the two were incompatible, as though the one to reach perfection must free itself from the other. In the divergent paths along which the life current has passed, in most the advance has been sought by instinct, and in one, the insects, instinct has developed to a

perfection of which our own direct experience offers no analogy. In the vertebrates the main advance has been the evolution of intellect, with its greatest development in man, a development which seems to have been gained by casting off instinct as an impediment.

What then marks the distinctive character of intellect? What is it that the vital impulse has imparted to us in evolving in us this tendency, this direction of our activity? What is distinctive in the mode of intellectual activity? The answer is that the intellect gives us knowledge of matter. It is the intellect which apprehends and gives form to the opposing current of outside action which meets the movement of life.

There are two facts which can hardly be considered to admit of dispute. One is that the division of matter into separate bodies is relative to our senses and to our intellect. There is no point in common experience nor in scientific investigation which we can mark as the natural and ultimate limit of analysis. There is no form of matter that is absolute. The divisions of matter that we call things, our natural laws, our genera and species, may all represent natural divisions, may follow outlines or systems that are inherent in the nature of matter, but there is no thing in our universe whose whole nature is contained within the thing itself. Everything is connected with the universe outside it by the influences, such as gravitation, electric attraction and repulsion and the like that radiate from it, perhaps throughout the universe. There are no outlines in nature. The outlines of things and the division of matter into things is relative to our action upon them. The second fact is that in any view it is possible to take of the evolution of the organic world, it is quite clear the intellect is a growth and development. Intellect has not come

into being ready made, like Athene fully armed from the brain of Zeus. It has come by a gradual and continual evolution, and also it is not the only form of mentality which has grown to an ever greater perfection in the course of evolution. These two facts cannot be unconnected. Taken together they clearly indicate that there is a correlation between the intellect and matter. The progressive evolution of either has involved the progressive evolution of the other. The intellect is the mode of apprehending reality as matter, and matter becomes more and more fixed into definite stable things with clear outlines as the intellect develops its power to use it.

For example, to take an illustration, it is inconceivable that a fish, whatever the perfection it might attain in its instinct or intelligence, could ever experience the water in which it lives as the resisting fluid it is to us, because whatever the range of its mentality its activity is determined by the organism which is instrumental to that activity, namely, the fish's body. Similarly if there be minds with bodies organised to act in a rarer medium they probably experience our air as we experience the fish's water, in an analogous manner I mean, but whatever form experience takes it is determined by the organ of their activity, the body.

This is what is meant by the correlation between the intellect as a mode of apprehending and matter as the order in which reality is apprehended. And what differentiates this from every other philosophical doctrine of the kind is that it views and interprets this correlation from the standpoint of action and not from the standpoint of knowledge. The intellect, it says, and in saying so makes appeal to the whole teaching of biology, has not been evolved for the purpose of pure speculation, in order that, as in Plato's allegory of the men chained

in the cave with their backs to the light, we might be freed from the tyranny of our practical needs and admitted to the vision of pure eternal truth. The intellect is our task-master bending us to the work we are accomplishing, canalising the channels of our activity, adapting us to the matter which serves us. And matter is the reality as it presents itself to us, at first in an opposing current, and then as the field of our life activity. The form of it grows and fashions itself as our action works upon it. The intellect apprehends reality as matter, and matter shapes itself to the apprehension as the evolution progresses.

The nature of intelligence and instinct reveals to us the reason why it must appear as though matter were the condition of life. The mode of our mental activity is intellectual and the intellect is formed to comprehend matter, to materialise reality. We saw in the case of mind and body that mind though apparently conditioned by the body is a reality which overflows the body, and that the body is really the condition of the mind's activity, the instrument of action. So in the more comprehensive case of life and matter, life is a reality which overflows matter, and the life now manifesting itself as a present activity in living material forms is a vaster and more original reality than the matter which constitutes those forms, the matter which is continuous with those forms in space. We know that it is so because life is a duration, and because in evolution we have the activity of an infinite, or at least of an indefinite, past, working in the material forms whose existence is only momentary. These are two facts plainly at variance with the possibility of mechanistic explanation. Yet though we know this, it does not seem to be so, on the contrary, it seems as if matter

must have pre-existed and also that it certainly will continue to exist when living activity is at an end. All science seems to teach that life is a phenomenon consistent with a certain material condition of this planet, that it could not have arisen until this condition was realised, and as it is, it appears to have secured but a very precarious foothold on the surface of a mass overwhelmingly vaster than the small portion it affects ; and if there are other planets attached to this or to other suns on which a similar phenomenon has occurred or may occur, even so, life seems quite insignificant and negligible in comparison with the enormous amount of inert matter which is scattered over a universe infinite in spatial extension. To attempt to minimise this plain teaching of science could have no other effect than to cover us with ridicule, just as also to deny the validity of physical science and to condemn its method as false would at once recoil on the philosophy that tried to found itself on such a negation. We must therefore be able to show why if we hold that inert matter is not the ultimate order of the reality of the universe but that life is the original movement from which everything, matter included, has sprung—why, if this is so, it appears as though it were not so, as though matter were the condition of life. The answer is that the mode of knowledge which serves our activity is intellectual, that the intellect is a mode of activity that materialises reality, that it is solely directed on the inert and is naturally unfitted to comprehend the living. But if this were the whole of our argument it would be worthless. Were it merely a criticism of scientific method and a refutation of scientific presumption it would carry no conviction. What could we possibly achieve by a criticism, however profound, a refutation, however complete, but the purely

negative conclusion that science had not yet succeeded in finding the law of the phenomenon of life? Our argument, however, at once assumes a different aspect if we can show not only that the intellect is unfitted to comprehend life but also that we can and do comprehend life, that there is side by side with our intellect a power or faculty, a mode of mental activity, essentially directed towards life and not towards matter. If our attack on the intellect were simply a criticism, simply a refutation, there would be nothing very special about it, certainly nothing original. There have been many attacks on the intellect, many refutations of mechanism, many protests that mental activity is a reality that cannot ultimately be brought under the conception of material agency, and they have all to some extent been unanswerable. But what has come of them? Nothing. The originality of this philosophy of change lies in the affirmation of a philosophical method that can apprehend the facts of life and mind, that can affirm the reality of change and movement.

Matter and intellect are formed on one another, the more therefore that the intellect comprehends reality the more fixed, stable, immobile, reality becomes, and there is no limit to this fixing power. This is to say that there is no limit to the triumph that we may win by the scientific method, no limit to the knowledge of reality that science may reach, but yet however far it reaches it is always a knowledge moving away from, moving in the opposite direction to, the knowledge of life. Therefore the further science advances the more life seems to recede, the more insignificant, the more dependent on conditions, it appears, and the more universal becomes inert matter. But in this materialising of reality the intellect is not comprehending life.

The most cursory observation shows us this. Matter and life appear in science not as two realities but as two forms of matter, inert unorganised matter and organic living matter. We treat both alike but with very different success. In the mathematical sciences—physics, chemistry, astronomy—whether our subject is the atom or whether it is the movements of suns and nebulae we feel confident that we touch reality directly, that however far we penetrate we meet no limit to the comprehensibility of matter. But in biology, and still more in psychology, our intellectual devices seem artificial, science is reduced to description and we seem never to touch the reality itself. In what does this natural disability of the intellect to comprehend life consist? Why is it that this method so strikingly successful in serving our activity, opening to us practically the unlimited command of the material world, giving us a knowledge that in its own direction is unlimited, bounded by no outer unknowable, cannot comprehend the vital impulse itself? Why when we turn back from the matter in and through which we act to regard the activity itself which is impelling us to action do we fail to grasp it? Why must we adopt the special method of philosophy, intuition? If life and matter were two realities independent of one another we could give no answer. It would be mere dogmatism to say of any reality that it was not amenable to intellectual comprehension. Moreover it would involve us in an irreconcilable dualism. That dualism would be even more pronounced were we to add that to the two realities corresponded two modes of apprehension. But the idea of the vital impulse is quite different. Life and matter are not two realities but two directions in an original movement. The one is the inverse of

the other and the ultimate reality holds both within itself.

The impulse of life is a tension. It is a focus of present activity in which the duration of an acted past is held together concentrated on the action in progress. Its qualities (and its richness is inexhaustible) are not a multiplicity packed up together in a small space, they do not lie outside one another, they interpenetrate. Every character the vital impulse holds permeates it. Matter is the extension that follows the de-tending or the interrupting of the tension of the impulse. It is, therefore, the movement in the inverse direction to life, a spreading or unfolding or extending movement. We may see an actual illustration of this principle in the germ and its development. In the germ all the past experience of the race, specialised in the experience of its individual ancestors is gathered up and exists, not as a collection of characters, or qualities packed together, but as a unity in which every character or quality interpenetrates. If in thinking of the germ we neglect its materiality, which, though present, is as a fact reduced almost to vanishing point, we have an exact analogy of the impulse of life. And in its development, still neglecting the materiality of its conditions, we have the analogy of the movement in the inverse direction which we call matter. The tension is interrupted, the spring is let go and there is an unrolling. The characters and qualities that existed interpenetrating at an unextended point now spread themselves out and separate themselves. This tension, which by simple interruption extends, is the metaphysical principle of the vital impulse.

CHAPTER VIII

“GOD, FREEDOM, AND IMMORTALITY”

THERE is an often quoted passage in *Creative Evolution* in which Bergson, concluding his description of the success that the life impulse has achieved in the evolution of man, compares humanity to an overwhelming cavalry charge, bearing all before it, beating down resistance, and destined it may be to overcome every obstacle, perhaps even death. In this vision of a destiny for humanity the philosopher seems to rise out of the calm atmosphere of contemplation of reality and fixed attention to present fact into a region of poetic and even religious exaltation. But in truth it is not on religious faith that he is relying; nor is he giving utterance to the prophetic dream of the artist who creates a beautiful ideal to cheer his fellow mortals bowed down by the hard practical necessities of existence; nor yet is he an enthusiast offering the shallow consolation of a possible escape from that doom of annihilation which casts a heavy sorrow on so many lives. He is pointing out to us the completely altered aspect of the world and the unlimited possibility opened out to us by the discovery of the real object of philosophy and the application of its true method. The new world vision, the new illumination that bursts upon us and spreads around us if this philosophy is true, is

nothing short of a new outlook for humanity. It is because of this that we see the deep spiritual movements in art, in politics and in religion, seeking support and inspiration in this philosophy.

It is a favourite fantasy of Bergson to look back to the origin of modern science in the experimental method, little more than 250 years ago, and imagine what a different development human knowledge might have undergone, and what a different kind of achievement might have been attained had the interest of those first pioneers of physical science, Kepler, Galileo and Newton, been psychological instead of physical, had they directed their attention to the discovery of the laws of mind rather than the laws of nature. This does not imply that the development of modern science, which has attained such stupendous proportions in our day, was due to the purely arbitrary choice of a direction by certain human minds, for they did not invent mathematics which was already in existence pointing the way ; nor does it imply that there would have been equivalent gain to humanity if the choice had been along another equally possible line of advance ; but it does mean that physical science is not the only line along which the advance of human knowledge is possible. Had the choice been then towards life and mind rather than towards matter there might have been enormous attainment in psychical science, and possibly philosophy might be now pointing out physical science as a line along which advance is possible. The aim and purpose of philosophy now is to direct attention to life and mind and to reveal the method by which they can be studied.

In presenting philosophy as the cultivation of that special activity of the human mind which alone is fitted

to apprehend the nature of life, we conceive of philosophy as that which is above and beyond physical science but which at the same time secures to us the reality and validity of science. Life overflows the reality of science which is cut out of it, selected from it, but it shows us this science as its own triumphant achievement, the great attainment of its evolution. And philosophy sets no limits to the possibility of physical science. Overcoming the obstacle of death, in the passage I have referred to, is intended literally as a scientific possibility.

There are three great ideas of the human reason that have been regarded as especially the subject-matter of philosophy—God, Freedom and Immortality. These three great ideas were named by Kant the Ideas of Reason. Reason, according to Kant, was the supreme activity of the mind, the activity whose aim was to introduce systematic unity into the whole of experience. But, in the case of our intelligence, reason had to work upon material supplied by sense and unified by the categories of the understanding. Consequently, in the *Critique of Pure Reason*, Kant found it to be impossible to justify the thought of existing realities, corresponding to the Ideas of Reason. Only on the basis of considerations furnished by the practical reason, did he conceive that such realities could be asserted, and as postulates of morality. Let us examine then these ideas in the light of the principle of the ultimate reality of change. What alteration or transformation must they undergo if they are to have a place in the new conception of ultimate reality which our philosophy offers? Before we can answer this question we must clearly comprehend the nature of the spiritual reality that philosophy affirms, and in particular what is meant by saying that the ultimate reality of the universe is spiritual and not material.

The fundamental principle of this philosophy is that reality is movement, and not something that moves, movement in the meaning of change. The something that moves is an illusion engendered by the intellectual apprehension of the movement. The difficulty of apprehending the notion we have seen to lie in the natural bent of our nature in the direction of intellect. This natural bent or intellectual nature has itself been formed in the course of the evolution of life. The nature of our intellect is to know reality in the static form we call matter and not in the flowing form we call life. Therefore it is natural for us to see in matter a form of reality that is prior to life. But it is one and the same movement which assumes to us either of the two orders, the order of life or the order of matter—the presence of one order is the absence of the other.

So strong is the bent of the intellect towards matter that it is very difficult to present this doctrine without raising a natural prejudice against it, without giving the impression that we are being juggled with by means of a verbal quibble. It seems to us natural to say that if the ultimate reality is movement and not something that moves, then it must be the movement of nothing. If we say it is not something at rest which is opposed to something in movement, then we seem to be opposing movement to nothing, and so we suppose that were movement to cease there would be absolute nought. And so we pose the question, why is there movement? If originally there was no movement how did it begin? And we seem by the very question to reduce the whole doctrine to foolishness. It is we ourselves, however, who are under an illusion when we suppose that we can oppose the idea of absolute nothing to the idea of reality. It is an illusion to suppose that there can be

an idea of nothing. The illusion is not the less persistent because it can be easily exposed. Absolute nothing is a pseudo-idea, and when we suppose we are thinking of it, we are not thinking of it but of something quite different. We must think of reality under some form, it must assume for us some order, and whenever we think of the absence of that order, the absence of any particular order, we do so and can only do so by replacing it with some other order. It is said that modern philosophy arose when Descartes formed the decision to doubt everything. The method of universal doubt led him to the discovery of a proposition which he found it impossible to doubt because the very doubt of it was an affirmation of it. *Cogito, ergo sum*. I think, therefore I am. This principle of Descartes, therefore, seems to involve that the act of thinking affirms reality. If I make the effort to extinguish every object of thought whatever, I find I am there myself, object to my own thought, contemplating the void I vainly try to imagine.

There are for us two main orders of reality, and the presence of one order is the absence of the other. They are forms of a movement which generates both. These are life and matter, and they correspond to the two forms of consciousness by which we apprehend them, intuition and intelligence. Such is the doctrine in abstract and general terms. Let us now try and realise its meaning in the concrete, without simile or metaphor, and yet in clear and precise terms. We must take our terms from conscious experience for we cannot do otherwise. Our individual life is as a circle within a circle and we can only interpret the wider circle by the smaller. The great encircling life is known, if it is known, by its reflection into the contained circle, the individual life.

We have seen that we ourselves are a union of soul and body. We cannot be only body because body is spatial, entirely and altogether present at the moment without duration, the instant that arises and perishes, where past and future meet. It is the soul that endures, that brings the past to act in the present, that joins the past to the future. It is the enduring soul that makes the present moment a becoming. So likewise of universal life the principle is the same. The reality of the universe is a soul that endures—perhaps we ought not to say that it is a soul but that it is soul or spirit. Matter is the present limit of its activity, an ever-moving limit which perishes as it arises. The soul of the universe gives to the universe duration, gives to it the continuity of becoming.

But is not this a fantastic doctrine, the dream of a poet-artist, having no contact with the actuality of existence? Not in the least. It is what experience teaches, it is what the most common and ordinary facts around us compel us to recognise. We cannot interpret the simplest fact of biology without recognising the present reality of the past. How can the past endure unless there is soul? It cannot endure in the body nor in matter. If the past perishes, if only the present moment exists, or rather if all the existence gathered into a present moment is only the matter that exists simultaneously at that moment, then living forms are an inscrutable mystery. Pure materialism would make a science of biology impossible, it is contrary to plain and universally recognised facts. We see in a living creature far more than the immediate effect of an immediate past, we see in it the preservation and activity and continuity of an illimitable past. As with ourselves, what we are is all that we have been, not

the last arrangement of a concourse of atoms, so of the universe, what it is is what it has been and what it is becoming. This means that the universe lives.

Philosophy involves this complete change of view. It shows us that reality is duration, that duration is a temporal and not a spatial continuity, that nothing is real save that which lives, and to live is to change. Life is a continuous becoming. Thus it alters profoundly our concept of fact and our concept of value. Our whole thought, and our whole language, the expression of our thought, has been formed to see in matter occupying space the very essence of reality. It is this that makes us regard touch as pre-eminently the test of reality. It finds expression in the very term we employ to denote actuality, we say, "in touch with reality." Physical science is the systematisation of our knowledge of matter, and all its generalisations are expressed in terms of touch. Philosophy alters the whole standpoint, it reveals a reality that overflows spatial reality infinitely, a reality of which space is the present unending moment.

But in this problem of life and matter we meet with a difficulty of a new order. Matter is essentially opposed to life and yet in whatever form we meet life it seems that it can only succeed, indeed can only exist, by entering into matter. How then can we say that life generates matter? In all the problems we have examined—the problem of mind and body, the problem of perception and memory, the problem of life and knowledge,—we have been able to bring to the interpretation the relation of two kinds of reality, or of two orders of reality, to one another. What we have seen is that in every case the natural bent of our minds, following the practical necessity

of action, which has determined the form of the intellect, has made it appear as if the order which is derived is more fundamental than the reality which originates. From this illusion it is possible to set ourselves free. We may apprehend reality as the duration of psychical experience by an intuition which is not intellectual. But we have always been dealing with two kinds of reality, quite distinct in themselves, whatever our theory of their relation. When we come to the ultimate question, when we say that the whole reality of the universe is life which alone endures, it is clear that life must be original and matter must be generated by it. Can we conceive this? Can we conceive life as original and creative, matter as created?

Let us first of all see how far science can take us towards a solution of the problem of life and matter. I shall then try to show that there is a definite point at which scientific explanation stops abruptly and that it is just at this point that the philosophical doctrine supplements science. The great fact that presents itself to the scientific student is the disparity between inert matter and living matter. There is an overwhelming mass of inert matter, stirred by a current of life in just one part of the universe, and, so far as direct observation goes, on the surface of our planet. Here one original movement of life seems to have evolved the various living forms, vegetable, animal, and perhaps we should add as a third class, bacterial, that struggle for existence. Our planet is only one small dependent world in a solar system, and our solar system is but one of many million members of a stellar system, throughout which, so far as our instruments reveal, the matter which comprises the masses is of the same nature as that which we

experience on our planet. In late years there has been formulated the theory of the conservation of energy, and all scientific investigation seems to confirm that great generalisation. In our solar system, whatever may be the case in other systems, energy is degrading, running down. According to what is known as Carnot's law, all forms of energy degrade into heat and heat tends to entropy, that is to a state of equable distribution. This means that there is a store of mutability in our system which is running down and with the attainment of entropy will be exhausted. We can form no conception from any scientific principle known to us of the means by which that mutability was introduced into our system, whether from some other system or by some inherent principle not discovered by us, nor do we know any means by which it can be restored when it is finally lost. The current of life seems to have entered at a certain stage of the degradation and to be confined to a narrow limit of activity. It has brought no new energy, created no energy, it has only created new form and it has done this by utilising the solar dispersing energy, by retarding its degradation or rather by turning it into new channels. Life as we know it on our earth is entirely dependent on the energy we receive from the sun. The discovery of radium has revealed a previously unsuspected store of energy in the earth itself, but the principle is the same, universal degradation.

Let me give an illustration of this important fact before I draw the philosophical conclusion. Suppose we pour into the same vessel two different fluids that will diffuse—say wine and water—then if we regard this vessel with its contents as a closed system, that is to say protected from external influences, we

have in it an illustration of this doctrine of entropy. At the beginning there will be a maximum of mutability—the two elements, wine and water, will exist side by side, each entirely distinct; at the end the two fluids will be equally diffused through the vessel—that will represent the exhaustion of mutability. Now between the two conditions anyone who should know the velocity of the molecules and the rate of their acceleration or retardation would be able to calculate the state of that mixture at any moment within the limits. When the limit is reached the calculation can go no further. Every moment corresponds to a state of the mixture up to the point when equilibrium is attained, but beyond that a minute, a day, or a year has no meaning so far as the system is concerned; it has finally run down. Our solar system is a closed system (or at least a comparatively closed system) of this nature. Physical and mathematical science studies a certain mutability in process of exhaustion and therefore matter may be described as a descending movement, and Carnot's law expresses the meaning of the absolute direction of a movement. There is no principle within the scope of physical science that discloses any clue to the reversion of this direction, that gives in place of the descending movement of matter a movement which raises, an ascending movement. For such a principle we must go to metaphysics, and we find it in the doctrine of the impulse of life. Science is unable to take note of anything in life but its manifestation in and effect upon matter. It appears to science not as an ascending movement after the manner in which matter is a descending movement, but as opposing the descent in order only to redistribute the dispersion. But philosophy

can discern in life the principle itself out of which new worlds are created. It fastens on this remarkable fact, the great fact of the evolution of higher forms, the fact that while the energy of our system is running down yet there has entered it a principle which has evolved ever higher and higher forms, and not lower and simpler forms. In this all theories of evolution agree. Here and there special circumstances have led to forms that appear as a regression or perversion to a lower type, but the main trend of evolution is upwards, from a primitive simplicity to complex and higher types. We see in life therefore an ascending movement which is the inverse of Carnot's law.

But it is not enough to discover an ascending movement opposed to the descending movement nor even to show how an ascending movement may generate a descending movement. A true metaphysic must reveal a principle which will explain both. The ultimate reality must be an original movement in which both and not one only are implicit. This brings me to an important principle which requires to be clearly stated and which indeed has even yet been so little recognised that it has no distinctive name. It is proposed to name it the principle of dichotomy. It is a principle of Bergson's philosophy though it has not been actually formulated in his writings; it is implicit in his doctrine of the vital impulse and he proposes to designate it by this name.

The doctrine that the fundamental reality is life, that life is an original movement generating an order the inverse of itself, is open to an obvious criticism. Just as in logic whatever is explicit in the conclusion

is implicit in the premisses, so if we conceive a movement to generate two orders opposite to one another, we must think of both as implied in the original movement. The original movement cannot be one of those orders purely, itself creating the opposition it meets. If matter is generated by the impulse of life, the original impulse must be conceived as a movement which in some way contains from the first those opposite orders, life and matter, which are its manifestation. These two opposites must be conceived as mutual implications in the original impulse. This conception of the unity of mutual oppositions in an original movement might seem difficult and impossible were it not that the fact meets us everywhere in nature. What makes it seem inconceivable is our intellectual nature, which compels us to give fixed, exclusive, rigid form to our conceptions. I do not mean precision. That is as much a necessity of philosophy as of science. The fundamental principle of philosophical method, what distinguishes it altogether from scientific method, is the principle of the distinction of inseparables. The philosopher cannot do what the chemist does when he separates the elements oxygen and hydrogen in his analysis of water. The oxygen exists by itself, the hydrogen exists by itself, and as they have been separated they can be recombined. But in philosophical analysis the elements we distinguish may have no separate existence, they may be absolutely distinct as realities but exist only in their union. Thus in our discussion of mind and body we held that the relation is a solidarity of two realities in action, one a duration, the other an extension,—but in action neither exists separately. The whole evolution of life, as we see its result in present living forms and read its history,

illustrates the principle that it progresses by the continual making explicit of the oppositions that exist implicitly in the vital impulse. Only by such a conception can we understand the conflict and struggle among living forms and the way in which opposed tendencies complement one another. Thus we see at the beginning of evolution the divergence between vegetable and animal, each opposed to and complementary of the other, and the same divergence in the evolution of instinct and intelligence, each opposed to and complementary of the other. This dichotomy, which manifests itself wherever there is life, which is the means by which life accomplishes its evolution, must be conceived as characterising the original impulse itself. The principle is not new, it is the same truth that is so emphatically expressed in that most living part of Hegel's philosophy, the logical principle of advance through contradiction.

The spiritual reality, then, which philosophy affirms is not a reality that is detached from and foreign to matter, superposed upon matter, or existing separately from matter. It is not the assertion that there is a psychical reality as well as a physical reality, but that the one is the inverse order of that which is the other. Physics is, to quote a phrase of Bergson, inverted psychics. The two orders of reality are not aspects, they are distinguishable and yet inseparable in an original movement, the absence of one order being necessarily the presence of the other.

Does this spiritual reality offer to us the satisfaction of our religious nature, which we may express as the desire for communion with God ; the satisfaction of our moral nature, which we may express as the desire for the responsibility of free-will ; and the satisfaction of our

emotional nature, which we may express as the desire for immortality?

It is no part of philosophy to satisfy these desires, but they are a part of our nature, and they express the deep and abiding interests that often draw men to philosophy. What, then, is the teaching of this philosophy as to the nature of God and the Soul? Our arguments have led us to the conclusion that the reality which thinks is not matter but spirit, that in the intuition of life we experience an activity which is free, and that in evolution we have the present fact of a continuous creation. When we consider the relation of these facts to a general principle of the ultimate nature of reality, there emerges quite clearly and distinctly the idea of a God who creates and who is free, source and generator at once of matter and of life, and whose creative effort is continued from the side of life in the evolution of species and in the constitution of human personalities.¹ But it is also clear that in interpreting this idea of God by the principle of a philosophy of original change we must modify profoundly the attributes which have been almost universally hitherto associated with the conception of God and the soul.

The question whether there is a Divine Being who stands to us in a personal relation, a Heavenly Father to whom we may offer worship, obedience and love, does not seem to me a question that philosophy can decide, for this reason, that whatever be our conclusion concerning the ultimate nature of the reality of the universe there is room within that reality for such an existence. Whether therefore there is or is not such an object of religion rests on various considerations,—

¹ Letter of M. Bergson to Father Tonquédec in *Les Etudes*, 20th Feb. 1912, p. 516, also quoted by E. Leroy, *Une Nouvelle Philosophie*, p. 202.

some scientific, some moral or ethical, some historical,—and belief or disbelief in the existence of a personal God with moral attributes must therefore rest largely on the personal equation and on the value we assign to certain kinds of evidence. The belief in a Being who personifies goodness and power can be held consistently, or rejected equally consistently, by a materialist or an idealist or a pragmatist.

In another sense, however, the idea of God is peculiarly the object of philosophy, and that is the sense in which we identify God with the ultimate principle of the universe. And there is this connection between the philosophical and the religious principle, that if we believe in God as an object of worship we also think of Him as a necessary and not as a contingent existence, and so identify Him with the first principle of existence, the Absolute of philosophy. In this way philosophers come to be described as theistic or atheistic accordingly as they affirm the unity or the multiplicity of the first principle. Unity is essential to the idea of God and therefore materialism which assumes an eternal discrete matter is atheistic; idealism, however little its principle may agree with the religious conception, may be described as theistic.

How then is the conception of God affected by the principle of this new philosophy? One attribute that has seemed to attach to this conception can certainly not belong to it—eternity, in the sense of timelessness. Reality is essentially movement, movement is duration, duration is change. If we call the original impulse of life God, then God is not a unity that merely resumes in itself the multiplicity of time existence, a unity that sums up the given. God has nothing of the already made, He is not perfect in the sense that He is

eternally complete, that He endures without changing. He is unceasing life, action, freedom.

No more profound change can be imagined in the conception of the universe, in the conception of human nature, in the whole outlook of life, than is involved in this new conception of God. The conception of God to which we have been accustomed in philosophy,—the most perfect being, the *ens realissimum*, the first cause, the *causa sui*, the end or final cause,—is the conception of a reality which time does not affect. Hence the continual attempt both in ancient and modern philosophy to conceive two orders or kinds of existence, the temporal and the eternal, and the whole problem of philosophy has been to conceive the relation of these two orders to one another. Time and the whole order of changing reality must, it has seemed, be of the nature of an emanation from God, or a manifestation of God. That order must be an order of revelation only, a device by which God unrolls, as it were, His nature before us. But however conceived, the time order is regarded as essentially unreal, appearance and not reality; change and movement are relative to us—God was, is, and ever will be. And in this conclusion that time is essentially unreal atheistic philosophies are in agreement with theistic philosophies. For both alike all is given. An original matter holds for the materialist all that there can be; the potentiality of existence is in matter which is eternal and unchanging. The idealists conceive the whole temporal process as eternally present and fulfilled in the final end or purpose.

From this conception of a timeless absolute have followed all the vain attempts to reconcile contradictions, and the unending controversies that have centred

round the problem of evil, the problem of free-will, and the problem of moral responsibility. The whole conception has its origin and owes its persistence to the intellectual prejudice which we have found to be the source of endless difficulties, the prejudice that makes the static seem more original than the moving, a prejudice due to the habits of our mind, which have been formed solely with a view to action, not for speculation. On the other hand, when we attribute to duration an absolute existence the whole conception is changed. The absolute that endures is an absolute that acts freely, and the conception of an absolute that acts freely involves the conception of an open universe. An entirely new meaning comes into the idea of communion with God. "In Him we live and move and have our being" means that He is the enduring impulse of life of which we form part and of which as individual creatures we are the product and the instrument of activity, and which is one and individual in the universal creative impulse which endures in continual new creation. Instead of a God for whom all is already made, to whom all is given, we have a God who acts freely in an open universe.

When we regard the problem of reality from this standpoint we have the advantage and the satisfaction that we are able to bring our concept of the ultimate metaphysical principle into direct contact with our life and so to unite in one comprehensive vision the highest philosophy and the most realistic science. Instead of an absolute affirmed by logic to reconcile the contradictions of finite existence, set high above us in a world that transcends change and therefore out of relation to the science of nature and the practical realities of life, we recognise the absolute in the very principle of change itself.

What from this standpoint is our human nature, what part does our activity play in the universal impulsion of life, and what is the nature and value of the freedom we enjoy? We are a product of evolution. The impulsion of life from generation to generation of germs through organised bodies has realised in us a form of activity which has raised us to be the prevailing type on the surface of this planet. But we are only one of many thousand forms that now exist and of myriad forms that have existed, each of which marked some success in the very fact that it existed, and each of which bore within it one and the same original impulse. It does not seem that any preconceived plan has been realised in us, nor are we conscious of, or able to discern, any aim or purpose to which we are striving. And whatever aim or purpose there may be in the life-impulse itself, if we suppose that there is awareness or consciousness in life itself (and as the whole is greater than the part if life is not consciousness it must be superconsciousness) that purpose is represented equally in the lowliest as in the highest of the forms in which it is expressed. There is as long a history, as continuous a duration, behind the amoeba or the protococcus as there is behind man himself. The difference is apparently in that success of organisation which has given to man the extended range of a free activity. What is the nature of this activity?

The one thing which is above all noticeable, when we compare our own organisation with that of other forms, is the enormous complexity and development of our brain. The effect of this has been to put at our disposal an increasing number of motor mechanisms and to give us the control over them which places them at the service of our will. The

progress of the nervous system consists in a simultaneous development of automatic mechanisms and of voluntary activity. The first furnishes to the second an appropriate instrument. The nervous system arises in the need of free movement, it is the instrument which provides it, and it grows in complexity strictly in relation to the range of free activity. With the progress of the nervous system has come increasing precision of action, and increasing variety, efficiency and independence. And on the spiritual side with this development of the material organisation has come the power of free choice. When we regard then our human nature as the outcome of the upward evolution of life, the triumph it marks is the attainment of a degree of freedom. In that sense freedom is the end or purpose of the vital impulse. In no other respect than this, the vast increase in the range of his activity which freedom brings, does man seem to have a distinct advantage over other forms of life. As we read the history of evolution in the present forms of living creatures and in the fragments we can piece together from the records left to us of past forms, the current of life appears as an activity bearing within it in its very nature the limitations which bind it. Every transformation of the living form brings a new automatism from which it must find escape.

Let us now turn to the great problems that especially concern philosophy, the question of the nature of God, of the Soul and its destiny, and see what kind of answer is possible to them when we recognise in the impulse of life the creative evolution of our whole nature physical and psychical.

If we identify the impulse of life itself with God we have this great difficulty, that we can only do so by

distinguishing the principle of life as a purely spiritual principle existing apart from and independently of the opposite material principle. We have seen why we must distinguish life and matter as two entirely distinct principles, because no conception we can form of matter will include that essential duration which characterises life. But then we have also seen that there is solidarity between life and matter in action, and therefore to be effective life must be in matter. To conceive life as an original movement free from any opposing movement, whether or not generated by itself, involves the contradiction of supposing the existence of an activity which does not, and *per se* cannot, act. It is in fact to fall into the error of the older philosophy and to conceive God as existing apart from and independent of the world. We should be disregarding the principle which we have spoken of as the fundamental principle of philosophical analysis—the distinction of inseparables. The reality of the universe appears as two orders: a spiritual order—the duration we call life; and a material order—the juxtaposition of things in space. We conceive these two orders as absolutely distinct, they have no single quality or attribute in common, each is the negation of the other and each at the same time has positive character of its own, and yet though distinct they are inseparable so that the existence of the one without the other is inconceivable. Place ourselves in imagination where we will in the universe, at any point and at any moment,—let us be watching the birth of a solar system from a nebular condensation, or the birth of a nebula from a solar dispersion,—we can only conceive the reality as two orders each of which, like the positive and negative poles of the magnetic needle, is constituted by its opposition to the other. If therefore we say that

God is spirit we must recognise that He can only act in and through matter, which though distinct from His being, is inseparable from His acting. If we say that God is free activity we must recognise that this very freedom can only operate by means of the automatisms it is its own nature to form and overcome.

The same considerations apply to the question of personal immortality. We have seen that it is possible to regard, nay that we must regard, the soul as a reality distinct in every respect from the body, the body being an extension, the soul a duration, and there is no single attribute which is common to both. But then we have seen that it is only in action, and in the change which action implies, that the soul endures, and it is only in the solidarity of mind and body that action is known or conceivable. Consequently if we could give any meaning at all to the soul in entire separation from its activity in the body, we must in imagination supply something to take the place of the body. It certainly seems that mind exists quite apart from the particular circumstances of the organism in which its individual activity begins and ends, each at a definite moment, for life passes from one individual to another by means of the most slender material thread. It seems to have the power of concentrating itself in a germ which, when we judge it, as we needs must, by its mass, appears infinitely insignificant. Yet it also seems that this material continuity is absolutely essential in order that life and mind may pass from generation to generation. Consequently the difficulty there is in believing in personal immortality is much more a scientific than a philosophical difficulty. There is nothing inconceivable or inconsistent in the idea in the sense that it can be shown to be logically contradictory or metaphysically

impossible. It is certainly impossible that the soul of an individual can exist as that individual apart from the body, because it is just that embodiment which constitutes the individuality. But it is quite possible to imagine, if we find it otherwise credible, that the miracle of a resurrection of the body may be a fact. Clearly it would be vain to seek in philosophy the confirmation of such a belief, but also it would be beyond the sphere of philosophy to negate it. On the other hand, there is nothing in philosophy that positively indicates such a reality as an individual soul independent of the body, which enters it at birth and survives the body's dissolution, or which comes into existence at birth and retains that existence after death. The impulse of life that philosophy makes its special subject-matter is equally manifested in the lowest form of vegetable and animal existence as it is in the highest forms of intellectual and instinctive activity.

There is, however, one form (perhaps the most prevalent form) of the doctrine of the immortality of the soul which this philosophy does absolutely negate,—the theory of Plato that the soul is by its nature eternal in the sense that it is timeless and unchanging. According to this theory the soul is of like nature with God from whom it emanates and to whom it returns. Like God it is eternal and immortal in the sense that it persists unchanged. Our philosophy agrees that the soul is of like nature with God only if we understand God's nature to be the unceasing ever-changing freedom of creative life. But there is one distinct ground of personal hope that this philosophy of change alone gives. We have seen that in the reality of a pure duration the past is preserved—preserved in its entirety. Now if this preservation of the past is a necessary attribute of pure

duration, then may it not be that some means exists, some may think must exist, by which life preserves those individual histories that seem to break their continuity at death? If it is not so there must be unaccountable waste in the universe, for almost every living form carries on an activity beyond the maturing of the germ and its transmission to a new generation. It would be in entire accordance with what we know if it should prove to be so, but we may never know. One thing is clear, the life-impulse bends us to the practical task of attention to life, and wide though our outlook is in comparison with other forms of activity, we are yet confined to an infinitely narrow view of the reality of which we are part.

The philosophy of change does not then sound any clear and confident note as to what lies beyond us in the unseen world. It does not present to us God as the loving father of the human race, whom He has begotten or created that intelligent beings may recognise Him and find happiness in communion with Him. There may be truth in this ideal, but it is no part of philosophy. Neither does it teach us the brotherhood of the human race—on the contrary it seems to insist that strife and conflict are the essential conditions of activity. Life is a struggle, and the opposing elements are the nature of life itself, the very principle of it. The evolution of life is the making explicit of what lies implicit in the original impulse. Philosophy reveals no ground for the belief in personal survival, and it shows us that however highly we prize our individuality we are the realisation of the life-impulse which in producing us has produced also myriad other forms. What then is the attraction that this philosophy

exercises? What is there of supreme value that it assures to us? The answer is freedom.

It does not seem so. Our whole life is regulated by automatisms. The life-process from beginning to end seems to be the formation of habits, and habits are only broken by new habits. Wherever we look, whether at the constant supply of daily needs or at the higher generalisations of science and philosophy, all advance seems dependent on regular orderly obedience to rule, all seems part of a universal determinism. Our philosophy shows us the ground of this determinism in the intellectual nature of our activity and at the same time reveals to us in the intuition of life the underlying reality of an essentially free activity. The very essence of life is unceasing creation, and our human form seems to register the greatest freedom that life has secured under the limitations of its existence. We do not know the end to which creation moves. Whatever it be it seems to us that our individual part can only be infinitely insignificant and confined to a narrow plane, but small though our part be, it is a part of the universal life that changes unceasingly and creates at each moment new existence. However narrow our outlook, our interest, our ideal, we actually do create, we actually do bring into existence something not only unforeseen but unforeseeable. It is true we share our freedom with all that lives, with life itself, but in our form is registered the greatest amount of free creative power which the life-impulse has yet evolved, so far as our vision extends.

This, then, is the claim we make for the philosophy of change. It is the final refutation of the Calvinism which has weighed heavily on the human spirit. It is true this Calvinism has ceased to be credible in the

grotesque form of an anthropomorphic theology, but it is still deeply impressed on the whole of our scientific conception. Science sees in change only the turn of the kaleidoscope, philosophy declares it to be the reality of new creation.

CHAPTER IX

THE IDEA OF A REALITY WHICH CREATES AND IS FREE

THE principle that change is original and ultimate involves the conclusion that reality is free activity. But this idea of free activity brings to light a new meaning of freedom. Free action is creative action. Creation is the opposite of mechanical repetition, it is action which makes itself.

If we ask anyone who is accustomed to drive motor-cars and horse carriages to describe the special difference between driving a car and driving a horse, he will probably reply that he feels he knows, or could know, exactly how a motor-car will behave under definite conditions, whereas he feels he never knows with certainty what a horse will do under any conditions. What is the ultimate ground of this uncertainty in regard to the action of a living creature? Is it that the machine is comparatively simple and the living organism practically infinite in its complexity, so that while the user may obtain complete knowledge in the one case, he can never attain it in the other? Is it as true of the horse as it is of the motor engine that given the same conditions there will succeed the same effect? Or is there in the animal something that is unconditional, something spontaneous, so that even the exact repetition of the conditions does not ensure the exact

repetition of the resulting action? Or is living action different in kind from mechanical action? There are two clearly recognisable features which distinguish vital and conscious action from mechanical and unconscious action. The first is that the conditions which precede conscious action are incapable of ever being actually repeated, that is to say, repeated in the same way in which the purely material or mechanical conditions which precede a physical event can be repeated. As often as we assemble saltpetre, charcoal and sulphur and apply a spark there will follow an explosion the whole extent of which can be accurately calculated beforehand from the antecedent conditions. We therefore call the antecedent conditions the cause, the explosion the effect. But in every repetition of conscious action there is a new element present in the fact that it is a repetition, there is the experience gathered in the past entering, consciously or unconsciously, as an element into the new action, however faithfully reproduced the other antecedents may be. Consequently for a conscious being every repetition is a new situation. And the second feature which distinguishes conscious action is that new determinants of a non-mechanical kind come into play in the form of purposes. Conscious actions are motived by a purpose as well as dependent for their efficiency on antecedent conditions. It is this feature of conscious action that leads us to distinguish two kinds of determinism, physical and psychical, but however different these appear the notion of determinism itself seems fundamental to our conception of all things whatever, material or spiritual. Its most general expression is the law of sufficient reason. Nothing happens, we say, unless there is a sufficient reason why it should happen. So fundamental is this principle that it is

not easy to conceive how in its absence there could be either science or philosophy, any knowledge of an ordered universe, or indeed an ordered universe to know.

And yet, notwithstanding the enthronement in our mind of this logical principle of sufficient reason, which seems to reduce all such notions as chance, contingency, spontaneity, into mere names for particular ignorance, we are quite unable to convince ourselves that freedom from the law of causality, real spontaneity, is not, and cannot be, a fact. The conviction that there may be chance, or freedom from mechanical determination, and free will, or freedom from the psychical determination of motives, rests partly on reason, partly on what seems to be an immediate datum of conscious experience. It rests partly on reason, for, in the first place, we recognise that nothing short of omniscience could establish the fact, if it be a fact, that all existence is subject to a universal law of action and reaction. Also the law of sufficient reason itself is a law of thought, a logical necessity that concerns the apprehension of reality ; it may not be applicable to reality itself. And then again, in the familiar proof of the existence of God based on the necessity of a first cause, it is argued that in the very law of causality itself there is implied an exception to it, namely, its origin. But stronger than any logical argument or reason is the feeling which seems an immediate assurance of our inmost consciousness, that we act freely, that we possess a power of choice which is a reality and not an illusion.

We have, then, in our common experience this continual contrast,—all our science, which is organised knowledge, and indeed all knowledge in the fullest meaning of the word, is a discovery of laws or uniformities ; these uniformities seem to be the very

substance and stuff of experience ; and yet at the same time there seems to be in mind, and it seems that there may be in nature, originality. How do we seek to reconcile this contradiction ? When we study natural science everything appears to be determined, to form part of a fixed system of action and reaction in which nothing is original, but in which everything is explained by its relation to other things. If there be such a fact as freedom, in what form do we try to image it ? It may be, we imagine, that enshrined somewhere in the very heart of things there is something not subject to this uniformity. It may be within the atom, it may even be in the hypothetical ether or it may be outside the physical universe altogether, but we suppose it to sit there, a good or evil demon, controlling events which do not in their turn control it, a cause that is not an effect. It is in this direction that human reason has always sought to solve the problem of freedom, to find out whether it is a fact or not. Determinism meets us everywhere in physical science,—but may there not perhaps be something behind, something really spontaneous and free from physical determinism ? When we turn from nature to mind it seems more hopeful, for the feeling of spontaneity is of the very nature of the experience of life and consciousness, and so we strive to see in voluntary action some liberty of indifference behind the apparent universality of psychical determinism ? But the attempt to find freedom enshrined somewhere in nature or in mind is condemned to failure by an *a priori* impossibility. It is the search for a cause which is not a cause, a condition which is unconditioned. We are endeavouring to apprehend a nature that the very form in which alone we could apprehend it

would contradict. Science not merely is but must be deterministic. The moment we embark on scientific investigation we close ourselves within a system of rigid determinism. This determinism belongs to what we have distinguished as the intellectual view. Causality is one of the rigid concepts by which we frame the flowing reality of life. But there is the other mode of apprehension; in intuition we apprehend reality at its source, as it flows, before it takes the bend, before it obeys the bias, which the intellect imposes. Is the life we apprehend in this philosophical intuition freedom? If this is so what can we know of freedom? What is the nature of the free act?

It must be clear I think that when we approach the problem of freedom from this standpoint, the standpoint of a reality that is essentially, ultimately and originally a change that is undetermined, and whose determination is brought about by the action that its process involves, there must arise an entirely new notion of the nature of freedom and of what constitutes free action. By freedom we shall mean creating; by determination, the created; and liberty will enter into the very notion of the creating act.

Whether or not spontaneity is a fact, the idea of it is rooted in an original experience. The word determinism seems to affirm something positive of which indeterminism is merely the negation, but it is easy to see that spontaneity is the original idea and determinism its negation. This is brought out very clearly in an important argument in Bergson's *Time and Freewill*,¹ an argument which has not had the attention it deserves and yet is essential to the

¹ Pp. 141-142.

full understanding of his doctrine of the nature of the free act. The argument is to prove that physical determinism is actually based upon psychical determinism and not *vice versâ*. The most abstract and universal expression of physical determinism is the conception of inertia. Inertia means that a body persists in the state of rest or motion in which it is, so long as it is not acted on by any force. This principle seems to be the most absolutely simple notion we can reach, certainly to be more fundamental than the notion of freedom. And yet in whatever way we try to define or to imagine this notion of inertia, we find that we can only do so by saying that matter cannot move, or stop moving if it is moving, of its own accord. So the very conception of this simple notion of inertia supposes a more original notion by which it can be stated, the notion of spontaneity. This notion implied in moving of its own accord is required to give the idea of inertia. And this is not merely verbal, it is essential to the apprehension of inertia as a fact. The whole idea of activity on which our notion of the physical world is framed, is based on a fact which we only experience, but which we actually experience, in life.

When we speak of the innate conviction and the intense feeling we have that our actions are free, we refer to an experience which every one seems able to recognise at once, and yet it is just in those actions in which the feeling of freedom is so intense, that it is most easy to show that freedom in any ultimate meaning of the word is absent. To this is due the triumph of the determinist argument, and the fact that it seems impossible to state the problem of freedom without at the same time resolving it in the determinist sense by the very terms in which we state it. The fact I allude to

is this. Our conviction of freedom is most absolute in actions that are trivial and indifferent, and almost if not altogether absent in those actions which arise at great crises in our lives. It is not when we are called upon to give weighty and important decisions that we have the intense feeling that we can do what we will; at such times our most intense feeling is of constraint, of a psychical compulsion, and indeed we feel that it is on this compulsion we rely for support. "I do this because I can do no other." On the other hand, in trivial and indifferent decisions we feel as we reflect on them, or as we contemplate them before we take them, that we could just as easily have acted otherwise than we did, and that we can now act of our free will, uninfluenced by motive.

It is not mere conjecture or an argument based on probability that assures us that the feeling of freedom so intense in trivial matters is an illusion. There is a new science of conduct based on the method known as psychoanalysis, which is being carried on with such extraordinary success and is giving important and hitherto unsuspected results in medical psychology. The more this science advances the more evident it becomes that the most trivial and indifferent actions are not insignificant, that on the contrary they spring from psychical causes which enter into the very structure of the soul. We are in fact compelled to the conclusion that there are no free actions in the sense of actions that are unattached, that float indifferently above the current of life, that are undetermined. In really free actions we are compelled, but the compulsion we feel is within us; we are called on to act with our whole nature and our whole nature responds. But this involves an entirely new conception of the nature of the free act.

The free act is the outward manifestation of an inner

state, but the inner state is not one of a multiplicity of psychic states, it is the whole personality. The particular colouring of the psychic states of a definite person is reflected upon the personality, but the whole personality is in each. If I single out one of my actions and ask in what sense it was a free action, the reply is, just to the extent to which my whole personality entered into the act and in acting was making itself, was creating the personality. But then, at the same time, I see that the very acting has in the action unmade itself. I have only to turn my attention from the acting to the acted, from the creating to the created, to see that, in the fixed form I have given to the created, I have determined, that is I have defeated, the creating. The French language has the philosophical advantage over ours that it can express this fact naturally by means of its reflective verbs. A reality which creates is *une réalité qui se fait*, and in creating is *une réalité qui se défait*.

There need be no difficulty in apprehending this notion if we make the effort that philosophy calls for and turning our mind from its attention to the action in progress bring to consciousness life itself in its living activity. We may see that causality can have no hold on this activity, for it is duration, the pure or true duration, which is change. There is no externality in true duration which exists as an all-inclusive present, and in which all character and quality interpenetrate. In action duration externalises itself; action unmakes it. The concept of causality as we use it in physical science depends on externality—how can there be cause and effect if there is neither extension nor succession? These belong not to the intuitive but to the intellectual view. The intellect externalises reality whether it is directed inwards in introspection or outwards upon the field of

action. Determinism is therefore the very form of intellectual apprehension, for science it is supreme, of the essence of reality. We cannot even state the problem of freedom without predetermining the solution in the very form we are compelled to give to the statement.

It may seem that this is a quite unimportant argument, depending upon a dialectical skill in making subtle distinctions which the ordinary man cannot appreciate, and that in making it we are giving to freedom, which man does value, a meaning that deprives it of all value. Let me try and show that it is neither unimportant nor dependent on hair-splitting logical or metaphysical distinctions. It rests on a broad distinction which every one who will may appreciate. It is the distinction between the concrete self which I feel to be present in, and to manifest itself in, all my actions, the self which makes the actions I do *my* actions, a self which I experience as an indivisible whole, a self not constituted nor composed of memories and imaginations, moods and emotions nor even of those unities of the conscious life which we now call complexes, but a self which owns and includes these and is wholly present in each of them, and on the other hand, a self which is a multiplicity of states, contradictory and discordant, whose unity seems to be an external bond. The very name we give to the concrete self—the individual—emphasises its essential unity, indivisibility and wholeness. This individual self is finite, limited and determined by other finite individuals, and its individuality may be, perhaps must be, transcended in a higher individuality. Before we consider this aspect of the individual let us see what is implied in individuality.

Within an individual we may differentiate or dissociate parts, but the parts are not elements or components which exist apart and are combined externally

into a group. The whole is before the parts which are views of it or selections within it. The act of the concrete self is in its very nature a free action, because it is the individual action of a self-contained whole springing from its inner nature, and there is nothing external which can compel it. It is free action because it is expressing its own nature in action. But when we view our actions accomplished, they appear external to us and we see that the very process of acting is the externalising of our individuality. The self now appears as a multiplicity,—motives, emotions, moods, fall apart and actions accomplished appear as things that are fixed and determined. In this view of the self the concept of causality is a necessity of thought. Without it our self would appear not only dissociated but chaotic.

But the concept of causality has undergone an entire change of meaning. There is a necessary connection between our actions and our nature, but it is not the expression of a mathematical quantitative equivalence between certain facts we call conditions or causes and certain other facts we call consequences or effects. The mathematical and physical concept of causality need not imply power or efficiency, but it does imply that the future is given in the present, even if it is replaced by the mathematical idea of function.¹ Now the future actions of a living creature may also be said to be given, that is, to be already present in its nature, but the meaning is totally different. Future actions are present in idea before they are carried out, and for the idea to realise itself in action effort or force is required. The notion of a force which realises our idea in living action is a different notion from that of force as it enters

¹ See Mr. Bertrand Russell's paper, "On the Notion of Cause," *Proceedings of the Aristotelian Society*, 1912-13.

into physical conditioning, and the difference is that in the case of living action force depends on freedom. For example, the sulphur, saltpetre and charcoal, which the spark causes to explode, do not in the explosion put forth an inner nature, inherent in the elements and waiting the opportunity to express itself. They are forced by external conditions to enter into new combinations which involve the rapid displacement of the occupants of the surrounding space. On the other hand, the seed which germinates under the necessary conditions of light, heat and moisture, puts forth an inner effort, and the conditions give freedom to its inner nature to unfold. The difference between the two notions of causality lies in the conception of duration. In physical causation duration means a succession of states which are purely external. In true duration there is no externality, a living thing is essentially free and the external conditions are conditions of its free activity. In the explosion of the gunpowder there is re-arrangement and displacement of elements, but no change in the elements, and the space and time in which the alteration of disposition occurs are conceived as unchangeable. But in the germination of the seed the process makes itself, there is real creation. What we have called the necessary conditions of germination—light, heat and moisture—are not the conditions of the process, the force that produces it, they are the conditions of freedom, the conditions without which there is no sphere for the activity, no world open to the development of the process. Even the gunpowder cannot explode if the environment does not admit of displacement, so that for activity even of the mechanical type there must be the negative condition of an open universe.

There is, then, a condition of freedom, a condition

without which there can be no change, no process, no creation. This condition is an open universe. When therefore we press this problem of freedom to the end, it comes to this : Is the universe open to our activity or is it not? In which of two different meanings can it be said that the future is already given in the present? Is what will be now written for whoso can to read, or is it unwritten, waiting to be written? Is reality making itself, or is it a scroll that is being unrolled? Is each moment only making explicit what the previous moment held implicit, or is there continual new birth, continual coming to existence not only of the unforeseen but of the unforeseeable? This is the essential problem of freedom. It is not the question of whether there may be somewhere an exception to a universal law of causality. We have not to choose between the alternatives of a universe subject to order and law, and a universe resting on a principle of chance or contingency. It is the question which of two different modes of causality we are to attribute to the universe. Is the ultimate reality physical or psychical? Are we part of a closed system of equivalent actions and reactions or are we part of a life which endures and changes, of an evolution which is a creative process in an open universe? In either case we can speak of causality; in either case what is will appear to be determined by what was, and what will be to be dependent on what is; but causality and determinism will have acquired in each case a distinct meaning. In physical causality we postulate an underlying identity which is the negation of change; in psychical causality the identity is change itself, the reality is duration and not something which endures without changing.

There is however one philosophical argument which

may be used against the reality of human freedom and which in any case seems directly opposed to the idea of creative evolution. This is the argument that reality is the Absolute as a perfect and completely harmonious individual experience. The Absolute is the reality itself which in all thinking we strive to know, it is the ultimate subject of all our judgments, and it is argued it must exist unless we can suppose that the very criterion we use in thinking, the criterion that the self-contradictory is untrue, is itself an unaccountable illusion.

Perhaps the best way to understand this argument is to illustrate it by its theological counterpart, the doctrine of a perfect, omniscient and almighty God. It is a curious fact that whereas in the thought of to-day the notion of freedom seems bound up with the notion of spirit, because contrasted with it is the rigid mechanism of nature, yet many religious systems, and all those which have had strict regard to rational and logical considerations, have denied free will. Christian theology, when it has been based on the idea of the perfection of the divine nature, has always tended to be determinist. Mohammedanism is even fatalist. There have been many attempts to reconcile the possibility of free will without sacrificing logical consistency. Indeed, free will has been advocated rather as an explanation of the presence of evil, opposition to the will of God, than as the privilege and necessary endowment of a spiritual being, and the religious mind has sought salvation in self-surrender and has found consolation in reliance on the grace of God. The idea of a God who combines in his person perfect knowledge and perfect power is the idea of an absolute existence in which mere ideality is transcended. For perfect knowledge truth is reality.

The philosophical argument corresponding to this

theological doctrine is that every partial aspect of reality presupposes, in the very recognition of itself as a partial aspect, a whole to which it belongs. This applies to ourselves, even to the concrete self which we have seen to be an individual whole, for we are finite individuals. In recognising that I am finite, I transcend my individuality. I see that I am part of a greater whole. I refer to quite a common and ordinary experience. Each of us realises that his life is not mere self-expression, that his activity is not purely self-centred, that besides the unity of his conscious states there is the community of which he is a member, the humanity to which he owes his special nature. What, then, can I know of the greater reality, of the higher individuality, to which I belong? The supreme object of philosophy is to reveal to us this ultimate individuality of the universe and our relation to it. There are two directions in which we may seek the attainment of this object, according as we are drawn to one or the other of the methods that are advocated by philosophers to-day. We may distinguish them as the way of logic and the way of life. One is the rational principle we apply in the intellectual apprehension of reality, the other is the principle of intuition. One is the principle that logic is creative, in the sense that in following it we constitute or construct ideally the whole of which we are a part. The reality transcending our finite existence, and reconciling and harmonising its contradictions, is the Absolute. Opposed to it is the principle we have been advocating throughout this study, that the method of philosophy is intuition, and that the Absolute is the reality we apprehend immediately as life. I wish here to compare these principles in regard to one aspect only, the light they throw on the nature of free will.

To the Absolute, conceived as a perfect individual, nothing can be lacking, all is given, there can be no possibility of creation. The Absolute, conceived as the ultimate reality, may exist wholly in the finite centres which strive within it for the realisation of their incomplete ideals ; we may conceive these private centres as monads each possessed of the individuality which belongs to the whole, and the Absolute as the harmony ; but in the Absolute they are eternally realised, and time and striving are appearances. Even if we conceive the Absolute as a community of wills, we can only give to freedom a restricted meaning, and are forced to the conclusion that all we are struggling towards is achieved already, is even now complete and eternally reconciled in the Absolute. On the other hand, there is the principle of life which is manifested in a continual need of creation. If the life which endures is the Absolute, then in transcending our private individuality we are not surrendering our freedom. The Absolute is not the type of reality to which our approximation is a degree, nor is it the ideal which we strive to realise ; it is not a reality beyond our action but the reality in our action. The creative evolution is going forward in our individual lives, we are not merely creatures, we are creators, in us the Absolute lives, and not merely we in it. It is this continuity of creation which unites as well as divides the whole universe. The Absolute transcends us infinitely and yet it is wholly present in the meanest thing that lives. Such is the essential principle of the philosophy which regards change as reality, movement as ultimate and not derived.

This metaphysical conception of life as the reality which creates and is free is actually moulded on experience. The philosophy of change is not therefore a

logic-tight system, complete and perfect, from which we can take nothing and to which we can add nothing. It has nothing systematic about it. It has not an answer for every question. It is a method which distinguishes different problems and examines them separately. Philosophy, like physical science, is capable of infinite progress to ever greater perfection.

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